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DATE: July 25, 2025

RE: Clairemont Community Plan Update – Draft Mobility Technical Report (MTR)

This technical memorandum documents the traffic operations analysis conducted for the Clairemont Community Plan Update (CPU) (hereinafter referred to as the “Clairemont CPU” or “Proposed Plan”). This Mobility Technical Report (MTR) summarizes the physical and operational conditions of the planned mobility system outlined in the Clairemont Mobility Element. This report is one component of the Clairemont CPU, identifying the planned mobility improvements and culminating with an analysis of all travel modes under the Proposed Plan conditions for the horizon year 2050.

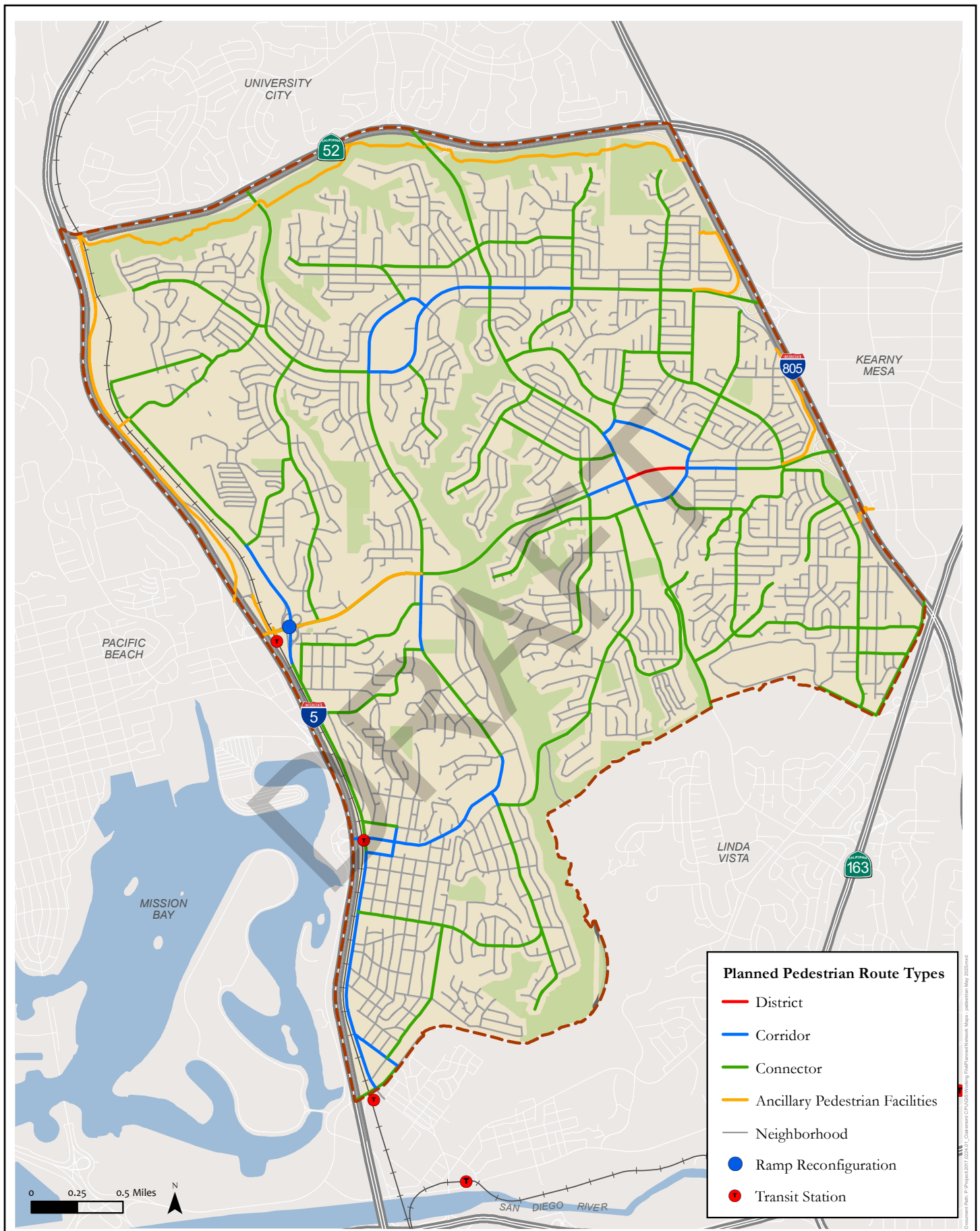
Introduction

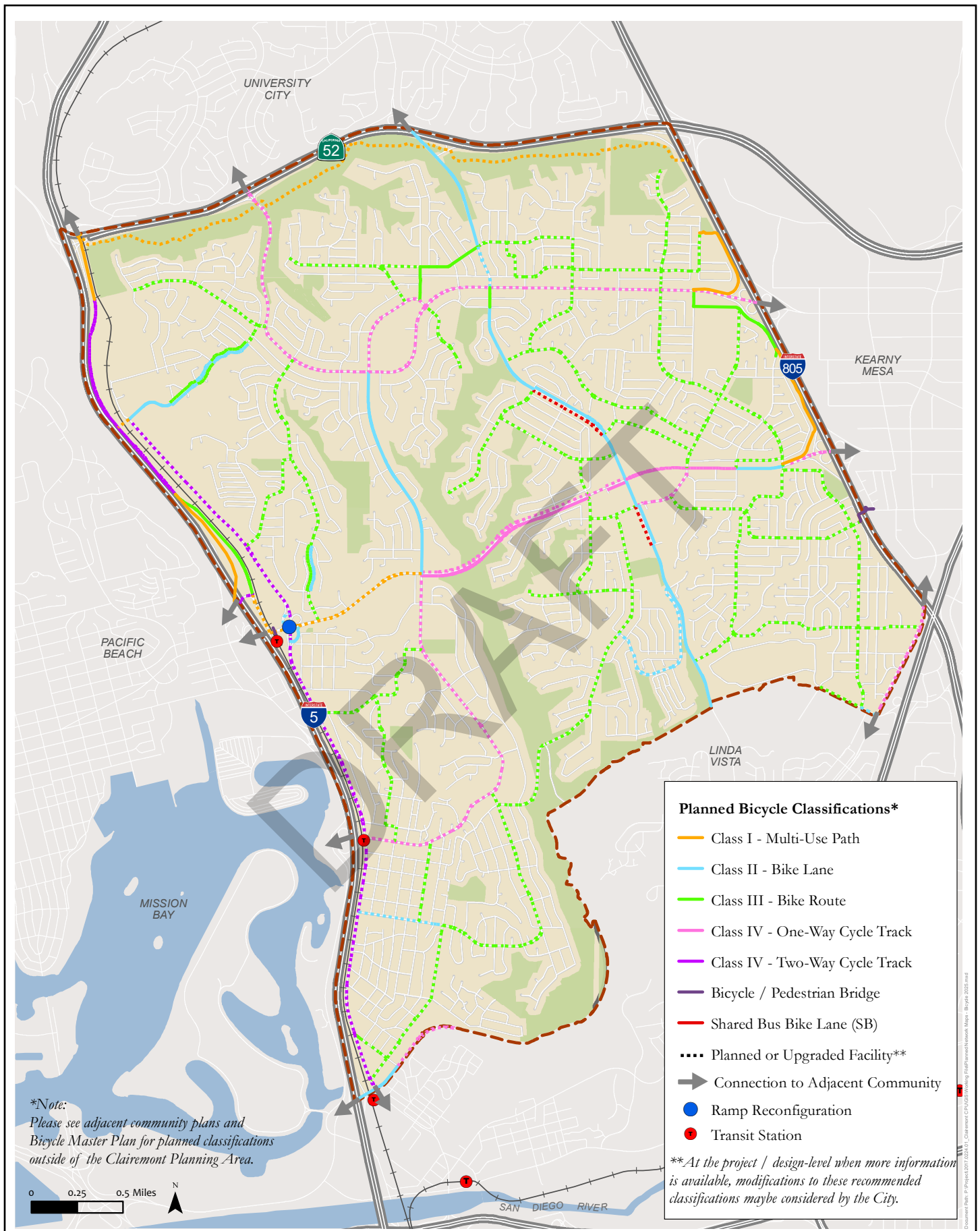
The Mobility Technical Report (MTR) for the Clairemont CPU incorporates the proposed changes within the mobility element network, which includes enhancements to the active transportation, transit, and roadway networks. **Figure 1** displays the planned pedestrian route types, **Figure 2** displays the planned bicycle network by classification, and **Figure 3** displays the planned roadway network classifications within the Clairemont CPU study area. Intersection geometries were also modified to reflect the envisioned Clairemont CPU network changes and displayed in **Figure 4**.

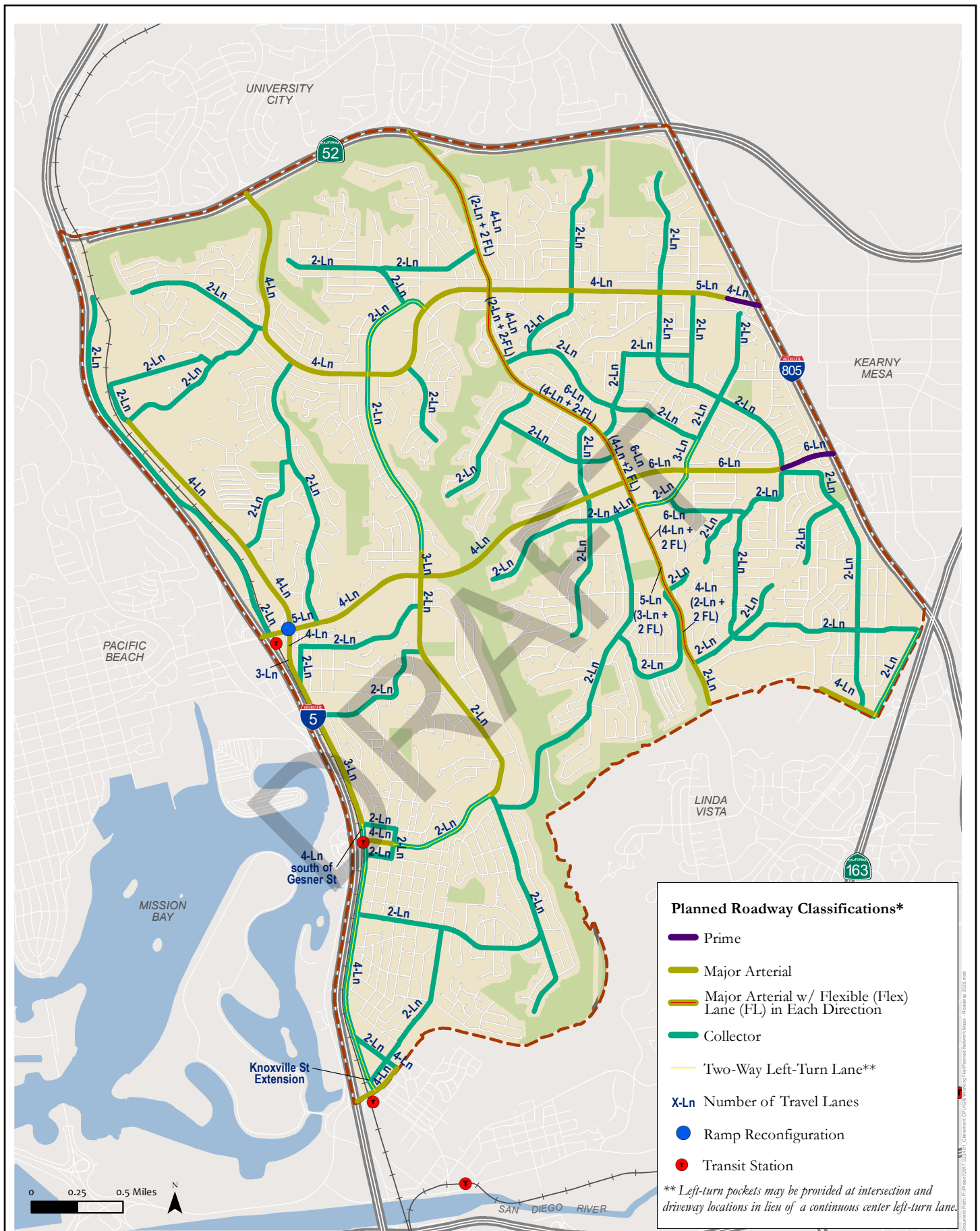
It is important to note that since commencement and ongoing effort of the Clairemont CPU, the City has adopted the Blueprint San Diego Initiative (Blueprint SD). This forward-thinking strategy for citywide planning, proactively identifies Climate Smart Village Areas, which are locations where the City supports increased development capacity aligned with planned regional transportation network investments. By establishing a strategic citywide land use and policy framework, Blueprint SD guides future growth to help achieve the City's housing, climate, and mobility goals. It also lays out the groundwork for CPUs to focus and enhance growth within the Climate Smart Village Areas, while still allowing each CPU to define specific land use changes and make infrastructure recommendations that reflect the unique long-term vision and development objectives of each community.

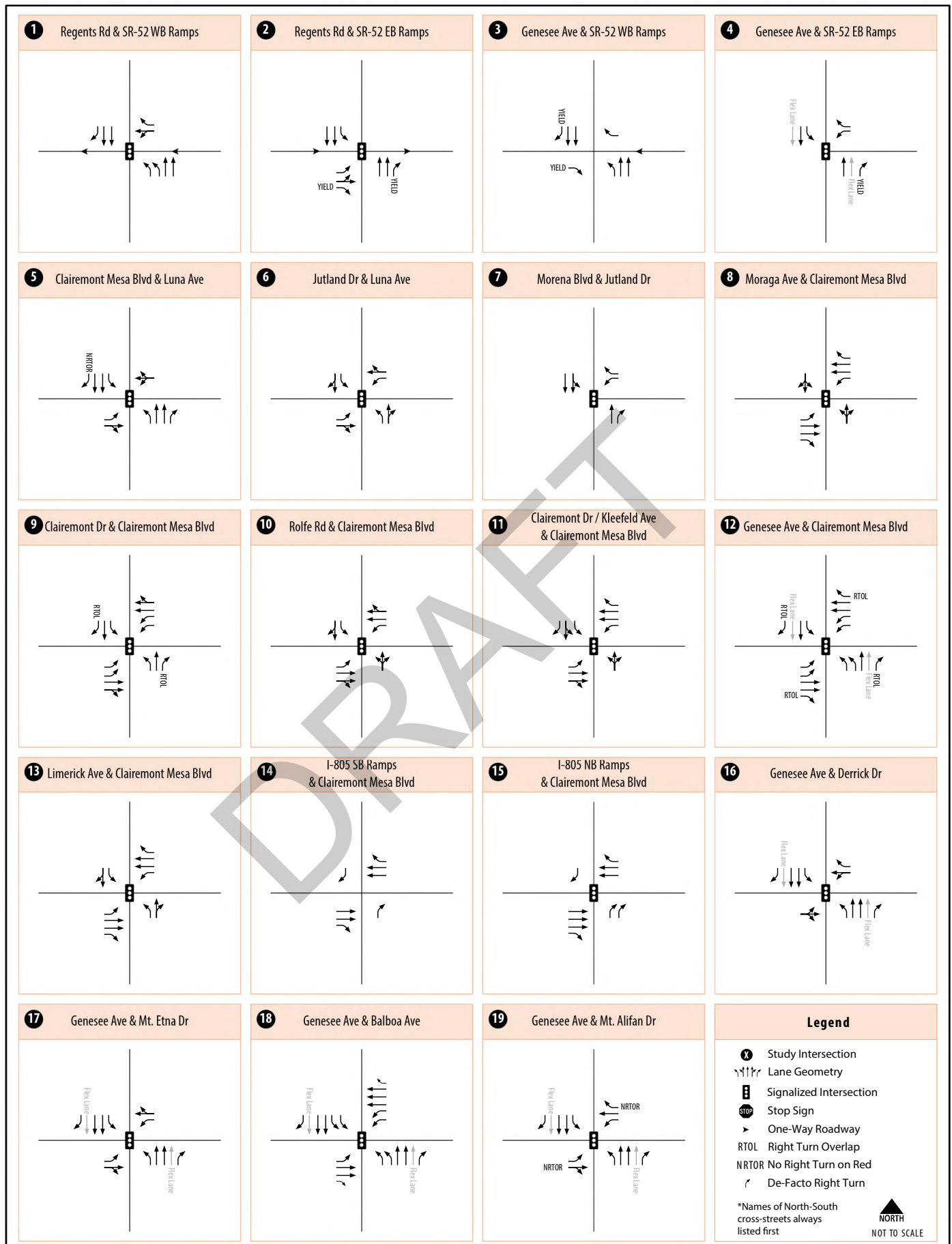
The Clairemont CPU's traffic analysis and most of the development of this MTR predate the Blueprint SD effort. As such, the traffic volumes analyzed and documented in this report are based on the SANDAG Series 13 Activity-Based Model (ABM), which was the model available at the time and was further locally calibrated and customized for the Clairemont CPU. To provide insights and understanding of the model traffic forecasts, supplemental analyses were conducted comparing outputs in the Series 13 ABM, the Blueprint SD model, and the adopted SANDAG Regional Plan (RP) shelf model. The comparisons conducted specifically to the Clairemont community found that, on average, Blueprint SD traffic volumes were lower than those generated by the Series 13 ABM used in the Proposed Plan analysis. Therefore, the analysis presented in this MTR is considered a relatively conservative assessment of the Clairemont CPU.

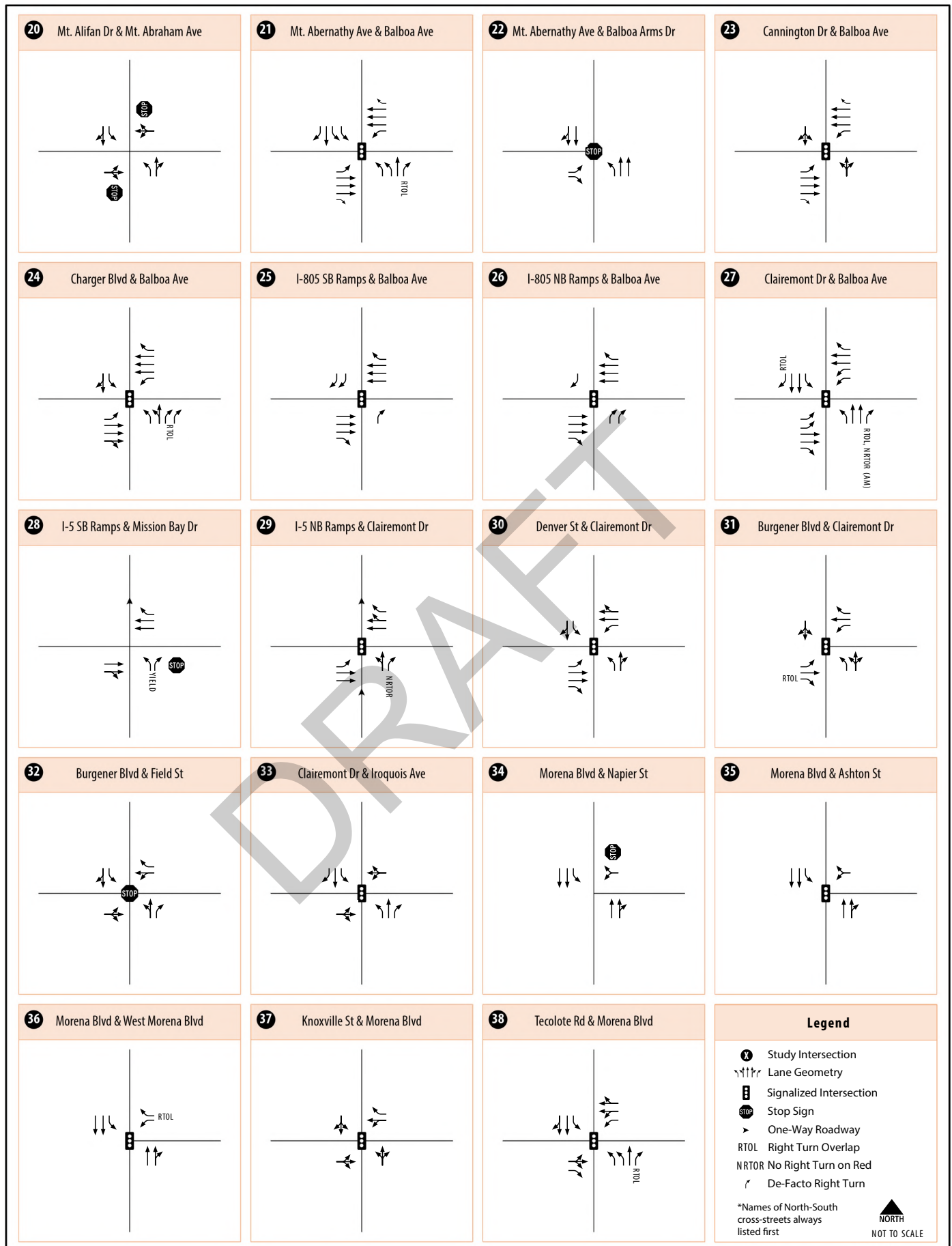
Attachment A includes a supplemental analysis of key hotspot locations within the Clairemont CPU study area. This analysis assessed differences in traffic operations between the Clairemont CPU and Blueprint SD scenarios and determined that no updates to the recommended Clairemont CPU network are warranted.

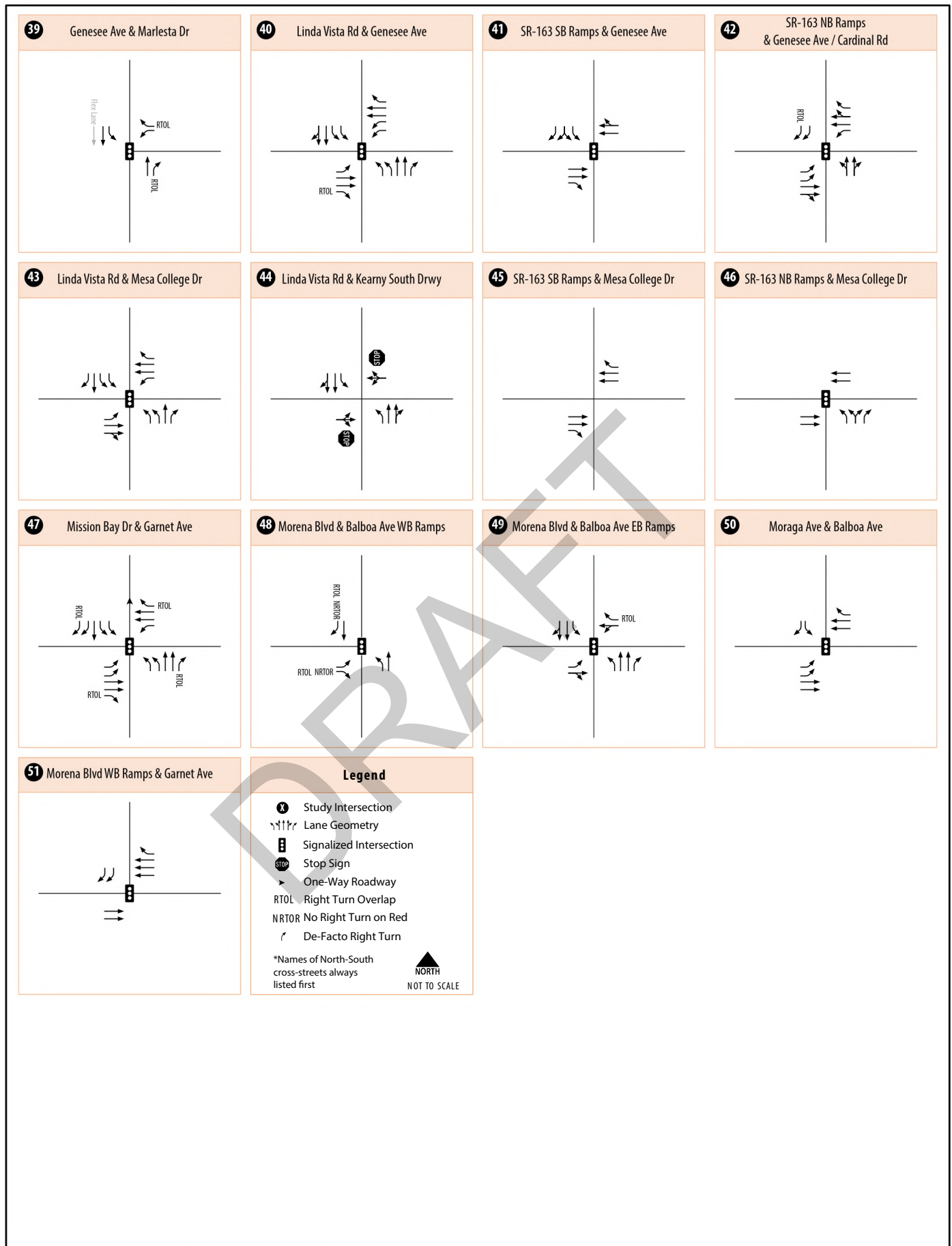












Pedestrian Mobility

The Proposed Plan's land use vision for Clairemont centers on the creation of mixed-use villages and vibrant, pedestrian-oriented corridors that promote sustainable development, strengthen neighborhood connections, and expand transportation options. A key element of this vision is the development of safe, comfortable, and engaging pedestrian environments, as nearly every trip begins or ends with walking.

To help achieve this, the Proposed Plan identifies pedestrian route types defined in the City of San Diego's Pedestrian Master Plan. These route types guide the design and treatment of pedestrian facilities based on land use context, transit access, the quality of the walking environment, and roadway function. Each route type is associated with recommended levels of pedestrian-friendly enhancements, such as tree-shaded sidewalks, high-visibility crosswalks, protected intersections, and traffic calming measures. These improvements are designed not only to enhance walkability but also create safe, inclusive streets for all users, including people with disabilities and families with strollers.

The following are pedestrian route types particularly relevant within the context of Clairemont under the Proposed Plan:

District route types support high pedestrian activity in urban core areas, mixed use developments, and major community thoroughfares. These routes typically feature wider sidewalks, street trees, pedestrian-scale furnishings, median refuge islands, and dedicated pedestrian crossing controls to safely accommodate high pedestrian volumes alongside vehicle traffic.

Corridor route types serve areas with moderate to high pedestrian activity near commercial uses, schools, and parks. These routes provide more enhanced pedestrian-friendly features than Connector routes and may include shaded walkways, pedestrian-scale lighting, and other features that improve safety and comfort.

Connector route types run along streets with moderate to high vehicular traffic and are typically associated with lower-level pedestrian treatments. They may include basic treatments such as sidewalk buffers, ADA-compliant curb ramps, and marked crossings. Connector routes play a key role in linking residential areas with Corridor and District routes.

Ancillary pedestrian facilities include plazas, paseos, multi-use paths, and pedestrian bridges. These off-street facilities provide important pedestrian connections and support moderate to high pedestrian activity in areas where vehicle access is limited or excluded.

Figure 1 illustrates the pedestrian route types that are identified in the Proposed Plan, while **Table 1** summarizes the mileage of each route type within the Clairemont CPU area.

Table 1 - Mileage by Pedestrian Route Type – Proposed Plan Conditions

Route Type	Miles
District	0.3
Corridor	8.2
Connector	43.9
Ancillary Pedestrian Facilities	9.2
Total	61.6

Source: CR Associates (2025)

As shown, the Connector routes, planned along 43.9 miles of roadway, will be the most commonly designated pedestrian route type in the community.

Corridor route have been identified along streets surrounding existing shopping centers such as Clairemont Town Square, Balboa Mesa Shopping Center, Clairemont Drive Village, and portions of commercial corridors like Morena Corridor, as well as neighborhoods near the Mid-Coast Trolley stations. A small segment of Balboa Avenue, which bisects the Balboa Mesa Shopping Center, has been designated as a District route. Overall, these planned Corridor and District routes are intended to support future mixed-use villages envisioned in the Proposed Plan.

Pedestrian Environmental Quality Evaluation (PEQE) provides an assessment of pedestrian facilities to help identify infrastructure needs and prioritize improvements. For roadway segments, the evaluation considers elements such as horizontal buffers, a clear pedestrian zone, and the posted speed limit. Intersection analyses evaluate for physical safety features, operational enhancements, ADA compliance, and traffic control.

Figure 5 shows PEQE scores under Proposed Plan conditions within the study area along select walkway segments and crossing locations. These scores reflect the assumed standard of infrastructure and amenities each route type should have. **Table 2** summarizes the PEQE scores by mileage of walkway segments (including both sides of the street) for existing and Proposed Plan conditions. Under Proposed Plan conditions, Low PEQE scoring walkways are reduced by more than half, while High and Medium PEQE scoring walkways increase.

Table 2 - PEQE Walkway Segment Summarized by Mileage

PEQE Score	Existing Miles	Proposed Plan Miles	Change in Miles (+/-)
High	0.7	3.1	+2.4
Medium	24.5	36.1	+11.6
Low	23.0	9.0	-14.0
Total	48.2	48.2	0

Source: CR Associates (2025)

Table 3 summarizes the PEQE scoring by intersection crossing location and compares the existing and Proposed Plan conditions. Under Proposed Plan conditions, most approaches improve to High PEQE scores, and no Low PEQE scoring crossings remain.

Table 3 - PEQE Scores by Intersection Crossing Location

PEQE Score	Existing Number of Approaches	Proposed Plan Number of Approaches	Change in Number of Approaches (+/-)
High	1	177	+176
Medium	184	37	-147
Low	27	0	-27
Total	212	214	+2

Source: CR Associates (2025)

Table 4 summarizes the recommended pedestrian improvements at crossing locations, derived from the changes assumed under Proposed Plan PEQE conditions. Some pedestrian improvements, such as high visibility crosswalks, are recommended throughout the Clairemont CPU area, while other types of improvements, such as Lead Pedestrian Intervals (LPIs), are recommended for District route types as well as some Corridor route types.

Table 4 - Intersection Pedestrian Improvements – Proposed Plan Conditions

Recommended Pedestrian Improvement	Crossing Legs
LPI (by Crossing Leg)	79
Countdown Signal	184
High-Visibility Crosswalk	125
Advanced Stop Bar	8
Upgrade Curb Ramp to ADA	33
Total	429

Source: CR Associates (2025)

As shown, the most common intersection pedestrian improvements are the addition of countdown signals and the installation of high-visibility crosswalks. A list providing specific pedestrian improvement assumptions under Proposed Plan Conditions is provided in **Attachment B**.

Bicycle Mobility

Biking offers a sustainable, healthy, and cost-effective way to travel within communities, and in Clairemont, expanding bicycle mobility supports the City's climate goals while promoting active lifestyles that benefit both individual and public health. However, the community's topography, characterized by a series of canyons and plateaus, limits route options, while major roadways often act as chokepoints, creating challenges to bikeability. To address these barriers, the Proposed Plan recommends expanding access to dedicated, low-stress bikeways, including separated facilities along key corridors that connect residents to existing and future major activity centers. These improvements aim to enhance comfort, safety, and connectivity, making biking a more practical and attractive option for travel and recreation throughout the community.

The Proposed Plan recommends implementing the bicycle network previously shown in Figure 2. This network was developed with consideration of the opportunities and constraints identified in the Clairemont CPU Mobility Element - Existing Conditions Report, including concentrations of bicycle-related collisions, levels of cyclist stress, gaps in the network, adjacent land uses, proximity to transit, and areas with existing or high potential for bicycle activity and demand. The planned network is comprised of Class I Multi-Use Paths, Class II Bike Lanes, Class III Bike Routes, Class IV Cycle Tracks (one-way and two-way), and shared bus/bike lanes. The mileage for each classification under existing and Proposed Plan conditions is summarized in **Table 5**.

Table 5 - Bicycle Mileage by Classification

Classification	Existing Conditions (Miles) ¹	Proposed Plan (Miles)
Class I – Multi-Use Path	2.6	5.2
Class II – Bike Lane	11.9	7.5
Class III – Bike Route	4.8	30.0
Class IV – Cycle Track	0.3	14.6
Bus-Bike Lane	0.0	0.6
Total	19.6	57.9

Source: CR Associates (2025)

Note:

¹ Reflects the conditions documented in the Mobility Element Existing Conditions Report for the Clairemont Community Plan Update prepared by WSP, June 2017 (**Attachment C**). Existing conditions have since changed, and as of 2025, additional bicycle infrastructure has been implemented.

Compared to existing conditions, the overall bicycle network in Clairemont will increase by 38.3 miles (195% increase). This expansion is partially due to the addition of physically separated bicycle facilities, such as Class I Multi-Use Paths and Class IV Cycle Tracks, which will comprise over 34% (19.8 miles) of the planned network, compared to just 15% (2.9 miles) of the existing network.

The expanded bike network is also attributed to the designation of more local neighborhood streets as Class III Bike Routes, which will account for over 52% (30 miles) of the Proposed Plan facilities. While bike routes require cyclists to share the roadway with vehicles, they can provide comfortable and effective connections when implemented on residential streets with low traffic volumes and speeds. When enhanced with traffic calming measures, volume management strategies, signage, and pavement markings, these routes, often referred to as bicycle boulevards, can prioritize bicycle travel and increase driver awareness. The Clairemont CPU supports identifying bicycle boulevards as a complementary element of the overall network. While their specific designation and design will be determined at the project level, bicycle boulevards are intended to enhance connectivity within and between neighborhoods.

Figure 6 shows the Bicycle Level of Traffic Stress (LTS) of all streets within the Clairemont CPU area under Proposed Plan conditions. This measure was applied to all roadways in the community traversable by bicycle, regardless of the presence of a designated bicycle facility. **Table 6** summarizes roadway centerline mileage by LTS score in the Clairemont CPU area.

Table 6 - Mileage by LTS Score – Proposed Plan Conditions

LTS Score	Miles
LTS 1-2	46.5
LTS 3	10.2
LTS 4	5.1
Total	61.8

Source: CR Associates (2025)

As shown, 75% of the Clairemont CPU study area roadway mileage is projected to achieve a LTS 1 or 2 with full implementation of the planned bicycle network. The increase in separated bikeways under the Proposed Plan creates lower stress environments more suited for cyclists of all ages and abilities. In contrast, the LTS scores under existing conditions were primarily LTS 3 and 4 along many major corridors, which reflect higher-stress environments appropriate for more experienced cyclists comfortable sharing the road with vehicles traveling at 35 mph or more. The criteria and scoring methodology for the LTS performance measure are provided in **Attachment D**.

Bicycle Opportunities

The planned bicycle improvements were developed while referencing recommendations identified in the Morena Corridor Specific Plan, Balboa Avenue Station Area Specific Plan, City of San Diego Bicycle Master Plan, and both SANDAG's Regional Bike Plan and 2021 Regional Plan. Outreach efforts associated with the Clairemont CPU also helped inform the final planned bicycle network. Efforts included coordination between City departments, improvements furthering implementation of the goals and policies of the City and region, forwarding the City's Climate Action Plan goals, as well as advancing State Complete Streets aims. Implementation of the Proposed Plan bicycle facilities should consider additional treatments at intersections to improve cyclist safety and comfort (i.e., bike boxes, exclusive bicycle signal phasing, and conflict zone paint).

Bicycle facilities could be implemented through the following mechanisms, as appropriate: repurposing existing public right-of-way (ROW), coordinating with abutting property owners, having an Irrevocable Offer of Dedication (IOD) for the City to obtain the right-of-way to implement the proposed bicycle facility, or having developers implement the bicycle facility based on the supplemental development regulations and incentives outlined in the Community Plan Implementation Overlay Zone (CPIOZ). The potential mechanisms that could be used to implement each proposed bicycle facility have been described in the Vehicle Mobility section. At the project-level when more information is available, modifications to these recommended bicycle classifications may be considered by the City.

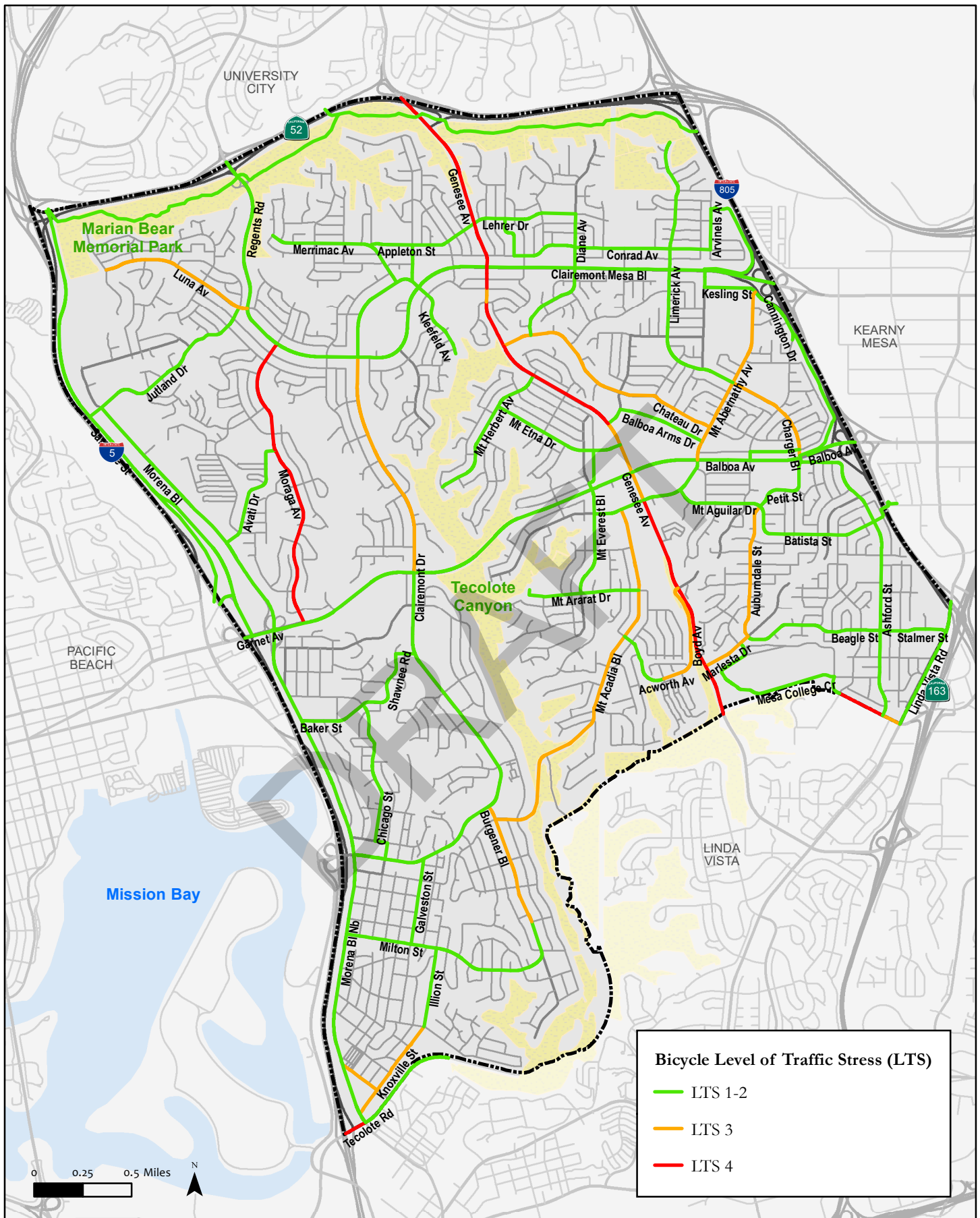
Bicycle Signal Phasing

Bicycle signal phasing is recommended to improve cyclists' safety, efficiency, and compliance at signalized intersections. Key benefits of implementation of bicycle signal phasing include the following:

- Reduction of conflict points between cyclists and turning vehicles by providing cyclists a dedicated signal phase.
- Clarifying when cyclists should proceed, therefore, reducing confusion of right-of-way at intersections.
- Enhances effectiveness of Class IV separated bikeways and two-way cycle tracks.
- Increasing compliance as cyclists are more likely to obey traffic controls when traffic control signals are specifically designed to support them.
- Encourages bicycling as an alternate mode of transportation by improving visibility and useability.
- Improved multimodal coordination by implementing signal timing strategies that accommodate all users, including bicyclists, pedestrians, and transit.

Bike signal phasing is recommended at all intersections where Class IV bikeways intersect in the community.

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Public Transportation Mobility

Clairemont is currently served by bus routes and the trolley, with transit services planned and developed by San Diego Association of Governments (SANDAG) and operated primarily by San Diego Metropolitan Transit System (MTS). Locally, these services rely on roadways and traffic signals maintained by the City of San Diego. To enhance mobility and reduce reliance on driving, the Clairemont CPU promotes the development of a fast, flexible, and reliable transit system that connects to the region's activity centers and surrounding communities.

The planned transit network for Clairemont is shown in **Figure 7**. The planned transit network for the Clairemont community is detailed in the currently adopted 2021 Regional Plan (RP) prepared by SANDAG and further expanded in the 2025 Regional Plan underway and Next Generation (NextGen) Rapid Route studies. Clairemont is expected to experience continued improvements in public transportation access by 2035, aligning with regional goals to enhance mobility, reduce vehicle dependency, and support equitable access to transit.

The most recent and significant transit enhancement for Clairemont has been the Mid-Coast Trolley Extension of the UC San Diego Blue Line, which opened in 2021. This extension connects the Santa Fe Depot in Downtown San Diego to the University community. It provides a high-quality transit option that strengthens regional connectivity and expands public transportation choices for the Clairemont community. As part of this project, the following two new transit stations were added within Clairemont:

- **Clairemont Drive Station:** Providing residents with access to destinations like University Towne Center (UTC), UC San Diego (UCSD), Old Town, and Downtown San Diego via the Blue Line Trolley.
- **Balboa Avenue Transit Center:** Offering park-and-ride and bike-and-ride facilities with direct access to UCSD, Downtown San Diego, and connections to the broader regional trolley system.

In addition to the trolley extension, the 2021 RP identified several transit projects focused on improving the Rapid Bus network including:

- **Rapid 295:** Proposed as a faster east-west connection through Clairemont Mesa Boulevard, linking Spring Valley to Clairemont via Kearny Mesa and La Mesa.
- **Rapid 41:** Planned to connect Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont, offering enhanced frequency and limited-stop service.
- **Rapid 292:** Phase 1 to connect Pacific Beach to Kearny Mesa, and the route would traverse through Clairemont via Balboa Avenue. Phase 2 would extend the route to Otay Mesa.

Complementing the transit investments, the 2021 RP also called for active transportation improvements, such as the Coastal Rail Trail extension between Clairemont and Tecolote and bikeway upgrades along Clairemont Drive and Genesee Avenue, aimed at promoting safe and direct walking and biking connections to transit. It is important to note that transit facilities shown in Figure 7 may differ from those in other City of San Diego community plans and could be superseded by future transit studies or updates to the Regional Plan. Therefore, transit improvements are subject to change and do not preclude the implementation of other transit improvements identified in those plans.

Building upon these improvements, the forthcoming 2025 RP outlines the next phase of major public transportation investments for Clairemont, including the introduction of multiple NextGen Rapid bus routes designed to provide high-frequency, limited-stop service to key regional destinations:

- **Rapid 241** will operate between Hillcrest and UTC, traveling through Linda Vista, Clairemont, and University communities along Genesee Avenue. Rapid 241 will connect residents to UCSD, San Diego Mesa College, Fashion Valley Mall, and the Veterans Administration Medical Center.

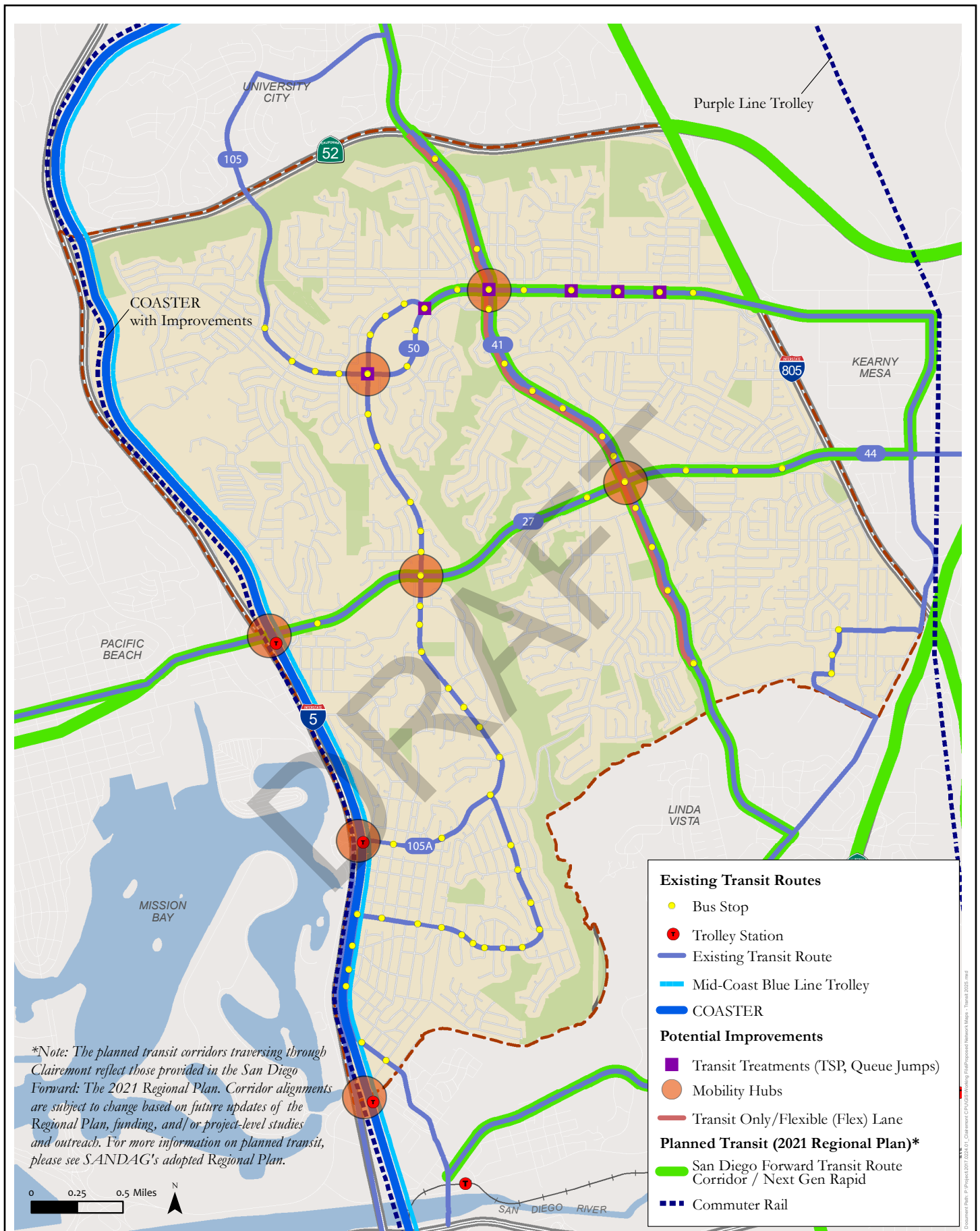
Phased for implementation by 2035, Rapid 241 will have priority treatments such as dedicated bus lanes and transit signal priority (TSP) proposed along the route.

- **Rapid 243** will operate between Pacific Beach and Kearny Mesa, which will connect Clairemont and Kearny Mesa residents to the beach via transit. In Clairemont, Route 243 will traverse along portions of Clairemont Mesa Boulevard, Clairemont Drive, and Balboa Avenue and is phased for implementation by 2035.
- **Rapid 295** will operate between Clairemont and Spring Valley, traveling through Kearny Mesa, Mission Valley, College Area, and La Mesa. Rapid 295 will improve east-west regional connectivity and is also phased for implementation by 2035.
- **Rapid 207** will provide a direct transit connection from Balboa Avenue Trolley Station through Kearny Mesa via Balboa Avenue, enhancing east-west transit access through Clairemont and Kearny Mesa to major employment hubs by 2035.

NextGen Rapid services will feature consolidated stop spacing (approximately half a mile apart), transit priority measures, upgraded stations with real-time arrival information, shelters, and lighting improvements. These features are intended to provide faster, more reliable travel times compared to traditional local buses.

Recognizing the need for flexible, neighborhood-scale transportation, the upcoming 2025 RP also identifies Clairemont as a designated Microtransit Service Area and the Balboa Avenue Transit Center as part of a neighborhood electric vehicle (NEV) shuttle area. Both microtransit and NEVs are types of Flexible Fleets or on-demand, shared shuttle services that will allow residents to book rides for short neighborhood trips within a defined service area or to connect with major transit routes and trolley stations. These services aim to close first- and last-mile gaps, improve accessibility for seniors, people with disabilities, and residents living farther from major transit corridors.

While no major changes to the local bus network are recommended at this time, Clairemont will benefit from the broader regional strategy focused on multimodal integration, Flexible Fleets, and active transportation improvements that promote walking and biking to transit. Continued investments in bikeway improvements, such as separated lanes along major corridors and connections to the Coastal Rail Trail, will enhance active transportation options within Clairemont.



Transit Opportunities

Transit is one of the most efficient ways to move large numbers of people, helping to reduce congestion and promote more sustainable travel choices. With several regional investments aimed at improving the convenience and reliability of transit, the City of San Diego has a unique opportunity to strengthen infrastructure needed to make transit a more competitive alternative to driving. At the local level, the City can enhance transit performance through complementary land use designations and targeted improvements to the public right-of-way and traffic signal systems that transit services rely on. To advance this vision, the following sections describe the strategies recommended in the Clairemont CPU or Proposed Plan to make transit more convenient, accessible, and attractive.

Land Use & Transit Coordination

The City of San Diego works closely with MTS and SANDAG to ensure transit operates efficiently within city streets and that land use planning aligns with both existing and future transit investments. This interagency coordination is particularly important as SANDAG moves forward with planning and implementing transit projects identified in the Regional Plan.

The Clairemont CPU positions the community to support these transit investments through strategic land use changes and design recommendations. The Proposed Plan promotes compact, mixed-use urban villages along major transit corridors such as Genesee Avenue and near Mid-Coast Trolley stations on Balboa Avenue and Clairemont Drive. Future land use designations would also support housing and expanded mixed-use development in Clairemont Town Square, Balboa Mesa Shopping Center, and Clairemont Drive Village. By concentrating development and density around transit, the Proposed Plan allows more people to live and work within walking distance of high-frequency transit, which encourages increased transit use, reduces vehicle trips, and fosters a more sustainable and connected community.

Transit Priority

As future Rapid Bus and Flexible Fleet routes are identified and established within Clairemont, additional transit priority measures will be considered in coordination with MTS and SANDAG. These efforts aim to improve transit reliability and enhance travel time competitiveness. Examples of transit priority treatments that can be implemented at the project-level include transit signal priority, queue jump lanes, transit only lanes, and shared transit/right-turn lanes. These measures can be utilized to give buses an advantage at intersections and congested corridors.

The Proposed Plan recommends exploring transit priority measures along the following corridors through future project efforts, such as corridor studies or NextGen Rapid Route studies:

- Balboa Avenue
- Clairemont Mesa Boulevard
- Genesee Avenue

Assessing and implementing transit priority treatments on these corridors, as needed, will help support more reliable, efficient, and competitive transit service throughout the Clairemont community.

Flexible Lanes

Flexible (flex) lanes would repurpose existing transportation right-of-way, typically travel lanes, for priority use by transit, high-occupancy vehicles (HOVs), or other congestion-reducing modes. These lanes could also operate dynamically, changing function and availability based on time of day or operational needs. For example, a flex lane may be reserved exclusively for buses during peak hours.

Specific lane configurations and the designation of the lanes will be determined at the project level, considering local needs, right-of-way constraints, and other feasibility factors. The Clairemont CPU proposes a dedicated flex lane in each direction along Genesee Avenue between State Route 52 and Marlesta Drive. These lanes are initially intended for transit use to improve service reliability and increase ridership. Where appropriate, other enhancements, such as queue jumps, may be considered in place of flex lanes, based on project-specific analysis.

The proposed flex lanes were identified through an evaluation of traffic patterns, transit routes, ridership trends, and projected growth in the corridor. By improving transit reliability and supporting increased ridership, the flex lanes are intended to help encourage and enhance multimodal mobility along Genesee Avenue.

Mobility Hubs

Mobility hubs are places where multiple travel options come together creating opportunities for seamless multimodal trips. They are a key strategy for improving transit connectivity and boosting ridership, particularly by addressing first- and last-mile challenges. By offering a variety of supportive services and amenities, mobility hubs make it easier for people to access transit and reach their final destinations.

Typically located along high-frequency transit corridors or in areas with a concentration of jobs, housing, retail, and entertainment, mobility hubs help extend the effective reach of the transit system. They encourage people to walk, bike, or use micromobility options like scooters to complete their trips. The design and scale of a mobility hub are tailored to its surrounding context. Potential features may include enhanced transit waiting areas, passenger loading zones, real-time travel information, shared mobility services, bicycle parking, NEVs, microtransit, and electric vehicle charging stations.

The Proposed Plan supports the Regional Plan by identifying the following transit stops and key intersections near mixed-use villages as potential mobility hub locations:

- Clairemont Drive & Balboa Avenue
- Clairemont Drive & Clairemont Mesa Boulevard
- Genesee Avenue & Clairemont Mesa Boulevard
- Genesee Avenue & Balboa Avenue
- Clairemont Drive Station
- Balboa Avenue Transit Center
- Tecolote Road Station

Overall, the introduction of high-frequency NextGen Rapid services, ongoing trolley improvements, new Flexible Fleet services, and expanded active transportation facilities providing access to transit, Clairemont is poised to become a key node within a fast, reliable, and equitable regional public transportation network.

Vehicular Mobility

Vehicular Network

A list of proposed roadway and intersection improvements are presented throughout this section. Any planned bicycle facility improvements within the specified roadway extents are also noted; however, the full set of bicycle facility improvements proposed for Clairemont is shown in Figure 2. The roadway improvements are predominantly informed by future year traffic volumes that are projected under full buildout conditions of the Proposed Plan and to accommodate the multimodal improvements. These improvements also align with the City's broader goals for a safe, efficient, and multimodal transportation network.

Mobility Loading Prioritization

The Proposed Plan's roadway improvements are guided by the mobility loading prioritization framework (also referred to as the roadway mobility priority system), as defined in the City's Complete Streets Policy and referenced in the General Plan. This framework emphasizes user safety and accessibility for roadway users in the following order: 1) people walking or rolling; 2) people who ride a bike or use micromobility; 3) transit riders; and 4) people using shared, commercial, and personal vehicles (including both personal trips and goods delivery).

While this framework provides overarching guidance, the actual design and implementation of public-right-of-way improvements are influenced by a broader set of considerations, including but not limited to:

- Safety and mobility for all users
- Transit performance and reliability
- Emergency response access
- Freight movement needs
- Travel delay and congestion impacts
- Adjacent land uses
- Context-sensitive design principles

These factors ensure that mobility improvements are not only equitable and forward-looking, but also responsive to the unique needs and characteristics of each corridor and community.

Roadway Modifications

- *Balboa Avenue, from Morena Boulevard SB Ramps to Morena Boulevard NB Ramps* - Reclassify this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial. A Class I multi-use path will be provided on the north side of Balboa Avenue.
- *Balboa Avenue, from Morena Boulevard NB Ramps to Moraga Avenue* - Reclassify this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial. A Class I multi-use path will be provided on the north side of Balboa Avenue.
- *Clairemont Drive, from Kleefeld Avenue to Clairemont Mesa Boulevard* - Reclassify this segment from a 4-Lane Collector w/ two-way left-turn lane (TWLTL) to a 2-Lane Collector w/ TWLTL. The remaining roadway space will be repurposed to provide one-way Class IV cycle track in each direction along Clairemont Drive and retain on-street parking on the west side, with the potential to expand on-street parking on the east side at the project-level or as necessary at the time of redevelopment.

- *Clairemont Drive, from Balboa Avenue to Iroquois Avenue* - Reclassify this segment from a 4-Lane Major Arterial to a 2-Lane Major Arterial. The remaining roadway space will be repurposed to add a one-way Class IV cycle track in each direction along Clairemont Drive. On-street parking will be maintained on both sides of the roadway.
- *Clairemont Drive, from Iroquois Avenue to Burgener Boulevard* - Reclassify this segment from a 4-Lane Collector w/ TWLTL to a 2-Lane Major Arterial. The remaining roadway space will be repurposed to add one-way Class IV cycle tracks in each direction along Clairemont Drive.
- *Clairemont Drive, from Burgener Boulevard to Denver Street* – This segment will be maintained as a 2-Lane Collector w/ TWLTL. Partial removal of parking would be necessary to add one-way Class IV cycle tracks in each direction along Clairemont Drive.
- *Clairemont Drive, from Denver Street to I-5 NB Ramps* – This segment will be maintained as a 4-Lane Major Arterial. Removal of parking would be necessary to add one-way Class IV cycle tracks in each direction along Clairemont Drive.
- *Clairemont Mesa Boulevard, from Moraga Avenue to Clairemont Drive* – This segment will be maintained as a 4-Lane Major Arterial with on-street parking allowed at spot locations. One-way Class IV cycle tracks will be provided on both sides of the roadway along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Clairemont Drive to Rolfe Road* – This segment will be maintained as a 4-Lane Major Arterial. One-way Class IV cycle tracks will be provided on both sides of the roadway along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Rolfe Road to Clairemont Drive/Kleefeld Avenue* – This segment will be maintained as a 4-Lane Major Arterial with on-street parking allowed at spot locations. One-way Class IV cycle tracks will be provided on both sides of the roadway along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Clairemont Drive/Kleefeld Avenue to Genesee Avenue* – This segment will be maintained as a 4-Lane Major Arterial. Partial removal of parking may be necessary to provide one-way Class IV cycle tracks on both sides of the roadway along Clairemont Mesa Boulevard.
- *Clairemont Mesa Boulevard, from Genesee Avenue to Doliva Drive* – This segment will be maintained as a 4-Lane Major Arterial with on-street parking allowed at spot locations. One-way Class IV cycle tracks will be provided on both sides of the roadway along Clairemont Mesa Boulevard.
- *Genesee Avenue, from SR-52 to Clairemont Mesa Boulevard* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flexible (flex) lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment, except for the segment between Appleton Street and Clairemont Mesa Boulevard, which will be upgraded from existing Class III bike route to Class II bicycles lanes. In some areas, the removal of existing on-street parking may be necessary to accommodate the Class II bicycle lanes.
- *Genesee Avenue, from Clairemont Mesa Boulevard to Bannock Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flex lane in each direction. A Class III bike route will continue to be provided along this segment unless dedicated bikeways are deemed feasible during project-level planning and implementation.

- *Genesee Avenue, from Bannock Avenue to Mt. Herbert Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general- purpose lane and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Mt. Herbert Avenue to Derrick Drive* - Reconfigure this segment from a 4-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. A Class II bicycle lane will continue to be provided on the east side of this segment and the flex lane on the west side will function as a shared lane for both transit and bicyclists.
- *Genesee Avenue, from Derrick Drive to Mt. Etna Drive* - Reconfigure this segment from a 6-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Mt. Etna Drive to Balboa Avenue* - Reconfigure this segment from a 5-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Balboa Avenue to Mt. Alifan Drive* - Reconfigure this segment from a 5-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment. The removal of existing on-street parking will be necessary to accommodate the multimodal facilities.
- *Genesee Avenue, from Mt. Alifan Drive to Genesee Court* - Reconfigure this segment from a 4-Lane Major Arterial to a 6-Lane Major Arterial consisting of two general-purpose lanes and one flex lane in each direction. A Class II bicycle lane will continue to be provided on the east side of this segment and the flex lane on the west side will function as a shared lane for both transit and bicyclists. The removal of existing on-street parking will be necessary to accommodate the multimodal facilities.
- *Genesee Avenue, from Genesee Court to Boyd Avenue* - Reconfigure this segment from a 4-Lane Major Arterial to a 5-Lane Major Arterial consisting of two northbound general- purpose lanes, one southbound general-purpose lane, and one flex lane in each direction (two total). Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Genesee Avenue, from Boyd Avenue to Marlesta Drive* - Reconfigure this segment from a 4-Lane Major Arterial to a 4-Lane Major Arterial consisting of one general-purpose lane and one flex lane in each direction. Class II bicycle lanes will continue to be provided along both sides of this segment.
- *Linda Vista Road, from Stalmer Street to Mesa College Drive* - Reclassify this segment from a 4-Lane Collector w/ TWLTL to a 2-Lane Collector w/ TWLTL. One-way Class IV cycle tracks will be provided in each direction along Linda Vista Road.
- *Morena Boulevard, from Balboa EB-Ramps to Gesner Street* - Reclassify this segment from a 4-Lane Major to a 3-Lane Major Arterial consisting of one southbound lane and two northbound lanes. The remaining roadway space will be repurposed to accommodate a two-way Class IV cycle track along the west side of Morena Boulevard. It is also worth noting that an existing section from Paul Jones Avenue to 2,200 feet north of Gesner Street is already functioning as a 3-Lane Major Arterial. However, in this segment, the current configuration is two lanes southbound and one lane northbound.

- *Morena Boulevard, from Gesner Street to Napier Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of Morena Boulevard while on-street parking on the east side will be retained.
- *Morena Boulevard, from Napier Street to West Morena Boulevard* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of Morena Boulevard, while on-street parking on the east side will be retained.
- *West Morena Boulevard, from Morena Boulevard to Knoxville Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of West Morena Boulevard, while on-street parking on the east side will be retained.
- *West Morena Boulevard, South of Knoxville Street* - Reclassify this segment from a 4-Lane Major Arterial to a 4-Lane Collector w/ TWLTL. In constrained areas, left-turn pockets will be provided only at intersections. A two-way Class IV cycle track will be provided on the west side of West Morena Boulevard, while on-street parking on the east side will be retained.
- *Mt. Alifan Drive, from Genesee Avenue to Balboa Avenue* - Reclassify this segment from a 3-Lane Collector w/ TWLT to a 2-Lane Collector w/ TWLTL. The remaining roadway space will be repurposed to provide one-way Class IV cycle tracks in each direction along Mt. Alifan Drive, while retaining on-street parking on both sides.
- *Mt. Abernathy Avenue, from Balboa Avenue to Balboa Arms Drive* - Reclassify this segment from a 4-Lane Collector to a 3-Lane Collector w/ TWLTL. Mt. Abernathy Avenue will be classified as a Class III Bike Route along this segment.
- *Knoxville Street, from Morena Boulevard to West Morena Boulevard* - Extend this 2-Lane Collector segment to create a new "T" intersection at Knoxville Street and West Morena Boulevard. Further study is needed to determine the preferred alignment and right-of-way requirements. Knoxville Street will be designated as a Class III bike route along this segment.

A summary of the roadway modifications is presented in **Table 7**, and the Proposed Plan roadway classifications are illustrated in Figure 3.

On-Street Parking Removal

Many of the Proposed Plan improvements identified throughout this section are intended to be implemented within the existing curb-to-curb environments. As such, the removal of existing on-street parking may be required to aid implementation, in some instances. It is anticipated that any additional parking demand associated with future developments will be accommodated on-site.

The Proposed Plan recommendations are intended to improve the mobility network for all modes of travel, including substantial investments in pedestrian, bicycle, and transit access improvements. When combined with the planned transit network expansions and service enhancements, these improvements will provide attractive alternatives to driving, potentially alleviating future on-street parking demand. Additionally, the Proposed Plan also supports the implementation of parking and curb management programs and strategies to further reduce parking demand, increase turnover, and make more efficient use of available curb space.

On-street parking, some of which were described in the Roadway Modifications subsection, may need to be removed at the following locations as network improvements are implemented:

- Clairemont Drive from Burgener Boulevard to Denver Street
- Clairemont Drive from Denver Street to I-5 NB Ramps
- Clairemont Mesa Boulevard, Clairemont Drive/Kleefeld Avenue to Genesee Avenue
- Genesee Avenue from SR-52 to Clairemont Mesa Boulevard
- Genesee Avenue from Balboa Avenue to Mt. Alifan Drive
- Genesee Avenue from Mt. Alifan Drive to Genesee Court

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Table 7 - Planned Roadway Modifications

Roadway	Segment	Existing Functional Classification	Planned Classification Designation	Planned Bicycle Facility	Parking Removal?
Balboa Avenue	Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	4-Lane Major Arterial	5-Lane Major Arterial	Class I (north side)	No ¹
Balboa Avenue	Morena Boulevard NB Ramps to Moraga Avenue	4-Lane Major Arterial	5-Lane Major Arterial	Class I (north side)	No ¹
Clairemont Drive	Kleefeld Avenue to Clairemont Mesa Boulevard	4-Lane Collector w/ TWLTL	2-Lane Collector w/ TWLTL	Class IV One-Way Cycle Track	No
Clairemont Drive	Balboa Avenue to Iroquois Avenue	4-Lane Major Arterial	2-Lane Major Arterial	Class IV One-Way Cycle Track	No
Clairemont Drive	Iroquois Avenue to Burgener Boulevard	4-Lane Collector w/ TWLTL	2-Lane Major Arterial	Class IV One-Way Cycle Track	No
Clairemont Drive	Burgener Boulevard to Denver Street	2-Lane Collector w/ TWLTL	2-Lane Collector w/ TWLTL	Class IV One-Way Cycle Track	Partial Removal
Clairemont Drive	Denver Street to I-5 NB Ramps	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	Yes
Clairemont Mesa Boulevard	Moraga Avenue to Clairemont Drive	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	No
Clairemont Mesa Boulevard	Clairemont Drive to Rolfe Road	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	No ¹
Clairemont Mesa Boulevard	Rolfe Road to Clairemont Drive / Kleefeld Avenue	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	No
Clairemont Mesa Boulevard	Clairemont Drive / Kleefeld Avenue to Genesee Avenue	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	Partial Removal
Clairemont Mesa Boulevard	Genesee Avenue to Doliva Drive	4-Lane Major Arterial	4-Lane Major Arterial	Class IV One-Way Cycle Track	No
Genesee Avenue	SR-52 to Clairemont Mesa Boulevard	4-Lane Major Arterial	4-Lane Major Arterial (w/ Flex Lanes) ^{2, 3}	Class II	Yes
Genesee Avenue	Clairemont Mesa Boulevard to Bannock Avenue	4-Lane Major Arterial	4-Lane Major Arterial (w/ Flex Lanes) ^{2, 3}	Class III	No
Genesee Avenue	Bannock Avenue to Mt. Herbert Avenue	4-Lane Major Arterial	4-Lane Major Arterial (w/ Flex Lanes) ^{2, 3}	Class II	No
Genesee Avenue	Mt. Herbert Avenue to Derrick Drive	4-Lane Major Arterial	6-Lane Major Arterial (w/ Flex Lanes) ^{3, 4*, 6}	Shared Bus / Bike Lane (west side) ⁵ Class II (east side)	No ¹
Genesee Avenue	Derrick Drive to Mt. Etna Drive	6-Lane Major Arterial	6-Lane Major Arterial (w/ Flex Lanes) ^{3, 4}	Class II	No ¹
Genesee Avenue	Mt. Etna Drive to Balboa Avenue	5-Lane Major Arterial	6-Lane Major Arterial (w/ Flex Lanes) ^{3, 4}	Class II	No ¹

Table 7 - Planned Roadway Modifications

Roadway	Segment	Existing Functional Classification	Planned Classification Designation	Planned Bicycle Facility	Parking Removal?
Genesee Avenue	Balboa Avenue to Mt. Alifan Drive	5-Lane Major Arterial	6-Lane Major Arterial (w/ Flex Lanes) ^{3, 4}	Class II	Yes
Genesee Avenue	Mt. Alifan Drive to Genesee Court	4-Lane Major Arterial	6-Lane Major Arterial (w/ Flex Lanes) ^{3, 4*, 6}	Shared Bus / Bike Lane (west side) ⁵ Class II (east side)	Yes
Genesee Avenue	Genesee Court to Boyd Avenue	4-Lane Major Arterial	5-Lane Major Arterial (w/ Flex Lanes) ^{3, 5}	Class II	No ¹
Genesee Avenue	Boyd Avenue to Marlesta Drive	4-Lane Major Arterial	4-Lane Major Arterial (w/ Flex Lanes) ^{2, 3}	Class II	No ¹
Linda Vista Road	Stalmer Street to Mesa College Drive	4-Lane Collector w/ TWLTL	2-Lane Collector w/ TWLTL	Class IV One-Way Cycle Track	No
Morena Boulevard	Balboa EB-Ramps to Gesner Street	4-Lane Major Arterial	3-Lane Major Arterial	Class IV Two-Way Cycle Track (west side)	No ¹
Morena Boulevard	Gesner Street to Napier Street	4-Lane Major Arterial	4-Lane Collector w/ TWLTL	Class IV Two-Way Cycle Track (west side)	No
Morena Boulevard	Napier Street to West Morena Boulevard	4-Lane Major Arterial	4-Lane Collector w/ TWLTL	Class IV Two-Way Cycle Track (west side)	No
West Morena Boulevard	Morena Boulevard to Knoxville Street	4-Lane Major Arterial	4-Lane Collector w/ TWLTL	Class IV Two-Way Cycle Track (west side)	No
West Morena Boulevard	South of Knoxville Street	3-Lane Major Arterial	4-Lane Collector w/ TWLTL	Class IV Two-Way Cycle Track (west side)	No
Mt. Alifan Drive	Genesee Avenue to Balboa Avenue	3-Lane Collector w/ TWLT	2-Lane Collector w/ TWLTL	Class IV One-Way Cycle Track	No
Mt. Abernathy Avenue	Balboa Avenue to Balboa Arms Drive	4-Lane Collector	3-Lane Collector w/ TWLTL	Class III	No
Knoxville Street	Morena Boulevard to West Morena Boulevard	2-Lane Collector	2-Lane Collector**	Class III	No

Source: CR Associates (2025)

Notes:

¹ Parking Prohibited

² Two vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

³ Queue jumps or other transit improvements may be implemented in lieu of flex lanes, depending on project-specific analyses and available right-of-way.

⁴ Four vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

⁵ Three vehicular travel or general-purpose lanes and two flex lanes within existing curb-to-curb width.

⁶ Flex Lane or Shared Bus/Bike Lane

* The proposed flex lane on the west side will function as a shared bus/bike lane.

** Under buildout of the Proposed Plan, Knoxville Street will extend to connect and create a new intersection with West Morena Boulevard.

TWLTL = Two-Way Left-Turn-Lane

Intersection Modifications

Several intersections were modified to accommodate buildout of the roadway segment and bicycle classifications, as well as to support the transit corridors and pedestrian treatments associated with the pedestrian route typologies. A summary of intersection modifications to accommodate buildout of the roadway segment classifications, such as new intersection legs, lane geometry, signal modifications, and major traffic control modifications are presented in **Table 8**. These modifications are also illustrated in Figure 4. Additionally, Table 8 identifies intersections where lead pedestrian intervals (LPIs) and/or leading bicycle intervals (LBIs) are recommended to support the Proposed Plan's support active transportation improvements.

Consistent with the proposed changes to the California MUTCD and the Caltrans' Intersection Control Evaluation process, all proposed signal modifications, including new signals, should evaluate alternative intersection controls such as roundabouts, at the project-level. Additionally, before implementing any new traffic signals, signal warrants must be met in accordance with the California MUTCD.

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Table 8 - Planned Intersection Modifications

#	Intersection	Improvement	Geometry Modification ¹	LPI Modification	LBI Modifications	Signal Modification ²	New Signal
4	Genesee Avenue & SR-52 EB Ramps	Repurpose a through lane from the northbound and southbound approaches to accommodate flex lanes.	✓			✓	
5	Clairemont Mesa Boulevard & Luna Avenue	Restripe the eastbound approach to an exclusive left-turn lane and shared through-right turn lane configuration. Remove eastbound-right turn overlap.	✓	✓	✓	✓	
6	Jutland Drive & Luna Avenue	Signalize intersection. Restripe the northbound, southbound, and eastbound approaches to an exclusive left-turn lane and shared through/right lane configuration. Protected left-turn phasing on all approaches.	✓				✓
7	Morena Boulevard & Jutland Drive	Signalize intersection.					✓
9	Clairemont Drive & Clairemont Mesa Boulevard	Repurpose through lanes from the north and south legs to accommodate one-way cycle tracks. Restripe the northbound and southbound approaches to an exclusive left-turn lane, a through lane, and exclusive right-turn lane configuration. Addition of northbound and southbound right-turn overlap.	✓	✓	✓	✓	
12	Genesee Avenue & Clairemont Mesa Boulevard	Repurpose a through lane from the northbound and southbound approaches to accommodate flex lanes. Restripe the eastbound and westbound approaches to dual left-turn lanes, two through lanes, and an exclusive right-turn lane configuration. Addition of right-turn overlaps at all approaches.	✓	✓		✓	
13	Limerick Avenue & Clairemont Mesa Boulevard	Restripe the westbound approach to an exclusive left-turn lane, dual through lanes, and exclusive right-turn lane configuration.	✓	✓	✓	✓	
16	Genesee Avenue & Derrick Drive	Repurpose through lanes from northbound and southbound approaches to accommodate flex lanes. Restripe the northbound and southbound approaches to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. It is important to note Genesee Avenue between Mt. Herbert Avenue and Derrick Drive is configured with a shared bus/bike lane in the SB direction only.	✓	✓		✓	
17	Genesee Avenue & Mt. Etna Drive	Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration.	✓	✓		✓	

Table 8 - Planned Intersection Modifications

#	Intersection	Improvement	Geometry Modification ¹	LPI Modification	LBI Modifications	Signal Modification ²	New Signal
18	Genesee Avenue & Balboa Avenue	Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to dual left-turn lanes, two through lanes, and an exclusive right-turn lane configuration.	✓	✓	✓	✓	
19	Genesee Avenue & Mt. Alifan Drive	Repurpose a through lane from the northbound approach to accommodate flex lanes. Restripe the northbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. Restripe the westbound approach to an exclusive left-turn lane, through lane, and exclusive right-turn lane configuration. Restripe the eastbound approach to an exclusive left-turn and a shared through-right lane configuration. Protected left-turn phasing for the eastbound and westbound approaches.	✓	✓		✓	
20	Mt. Alifan Drive & Mt. Abraham Avenue	Repurpose through lane on southbound approach to accommodate one-way cycle tracks. Restripe the southbound approach to an exclusive left-turn lane and shared through-right lane configuration.	✓				
21	Mt. Abernathy Avenue & Balboa Avenue	Through lane removed on southbound approach. Restripe the southbound approach to dual left-turn lanes, a through lane, and an exclusive right-turn lane configuration.	✓	✓		✓	
27	Clairemont Drive & Balboa Avenue	Restripe the eastbound and westbound approaches to dual left turn lanes, dual through lanes, and an exclusive right-turn lane configuration. Restripe the southbound approach to an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration. Right-turn overlap added to southbound right.	✓	✓	✓	✓	
31	Burgener Boulevard & Clairemont Drive	Repurpose a through lane from the eastbound and westbound approaches to accommodate one-way cycle tracks. Restripe the eastbound and westbound approaches to an exclusive left-turn lane, through lane, and an exclusive right-turn lane configuration.	✓	✓	✓	✓	
33	Clairemont Drive & Iroquois Avenue	Restripe the northbound and southbound approaches to an exclusive left-turn lane, a through lane, and an exclusive right-turn lane configuration.	✓	✓	✓	✓	
39	Genesee Avenue & Marlesta Drive	Repurpose through lane from southbound approach to accommodate flex lanes. Restripe the southbound approach with an exclusive left-turn lane and through lane configuration.	✓			✓	
40	Linda Vista Road & Genesee Avenue	Add a right-turn overlap on the eastbound approach.				✓	

Table 8 - Planned Intersection Modifications

#	Intersection	Improvement	Geometry Modification ¹	LPI Modification	LBI Modifications	Signal Modification ²	New Signal
43	Linda Vista Road & Mesa College Drive	Restripe the northbound and southbound approaches to dual left-turn lanes, a through lane, and an exclusive right-turn lane configuration. Restripe westbound approach to exclusive left-turn lane, two through lanes, and an exclusive right-turn lane configuration.	✓	✓	✓	✓	
48	Morena Boulevard & Balboa Avenue WB Ramps	Restripe the northbound approach to an exclusive left-turn lane and through lane configuration. Restripe the southbound approach to a through lane and an exclusive right-turn lane configuration. Add a right-turn overlap on the eastbound and southbound approaches.	✓		✓	✓	
51	Morena Boulevard WB Ramps & Garnet Avenue	Signalize and reconfigure intersection. An additional right-turn lane on the southbound approach. An additional through lane on the westbound approach.	✓				✓

Source: CR Associates (2025)

Notes:

¹ Geometry modifications are changes to the intersection configuration which include the following examples: restriping, lane addition or removal, repurposing lanes, new intersection legs, new turn pockets, and channelization of turning movements.

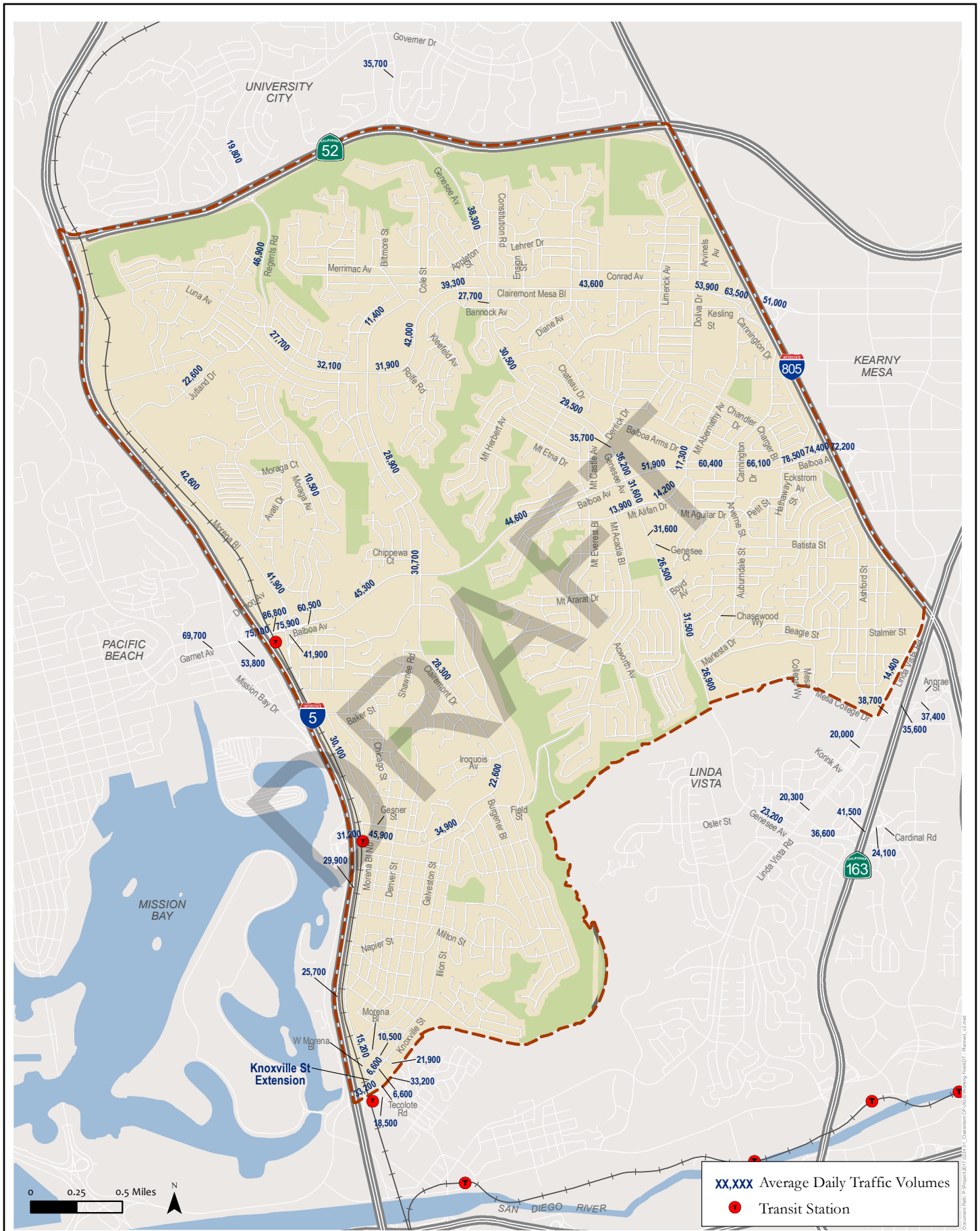
² Signal modifications are changes to the phasing and key timings which includes the following examples: change in left-turn phasing (i.e., protected phasing, permissive phasing) and the addition or removal of a right-turn overlap. It is assumed that intersections along the Genesee Avenue corridor with proposed flex lanes will have signal modifications as part of the mobility concept.

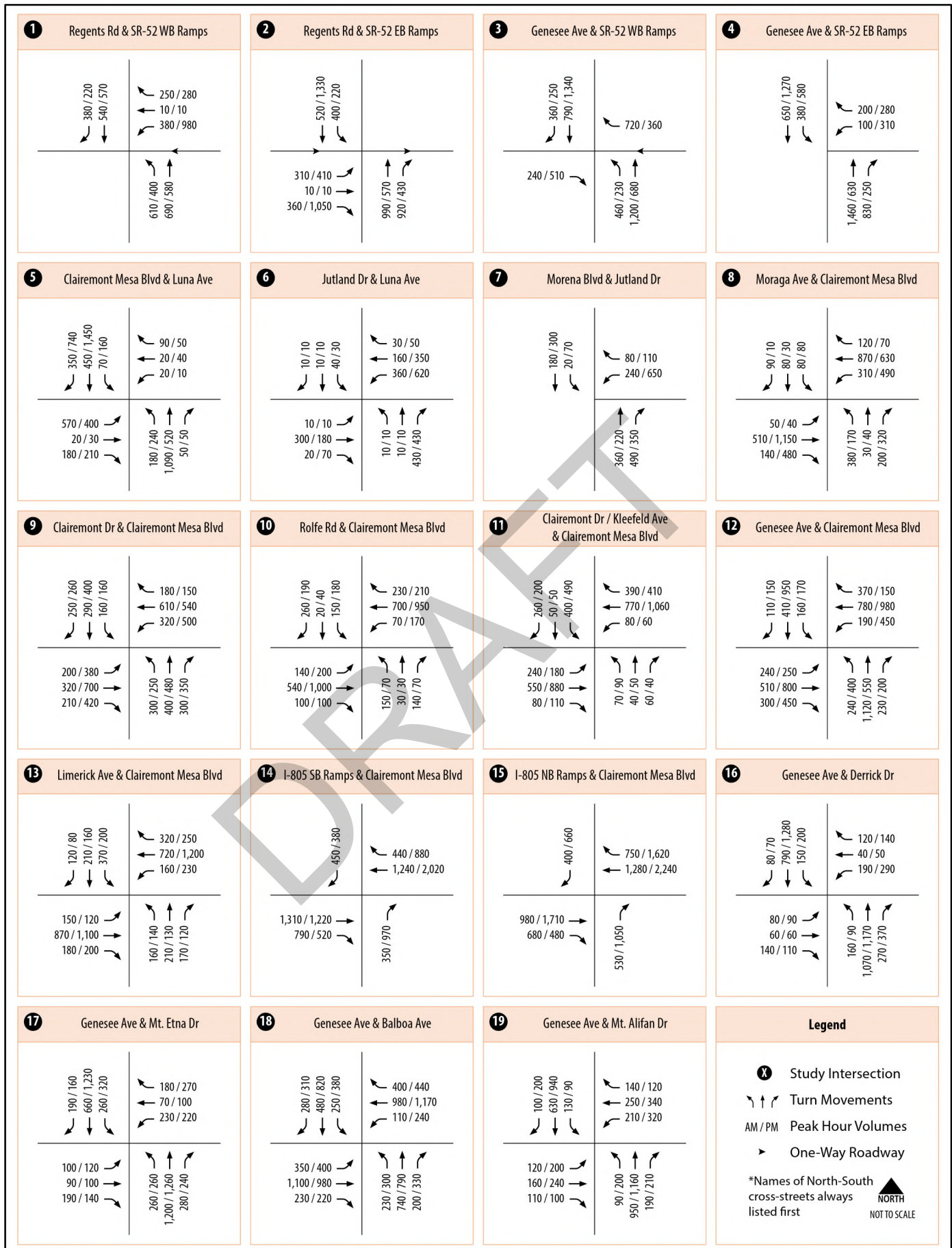
Vehicular Demand

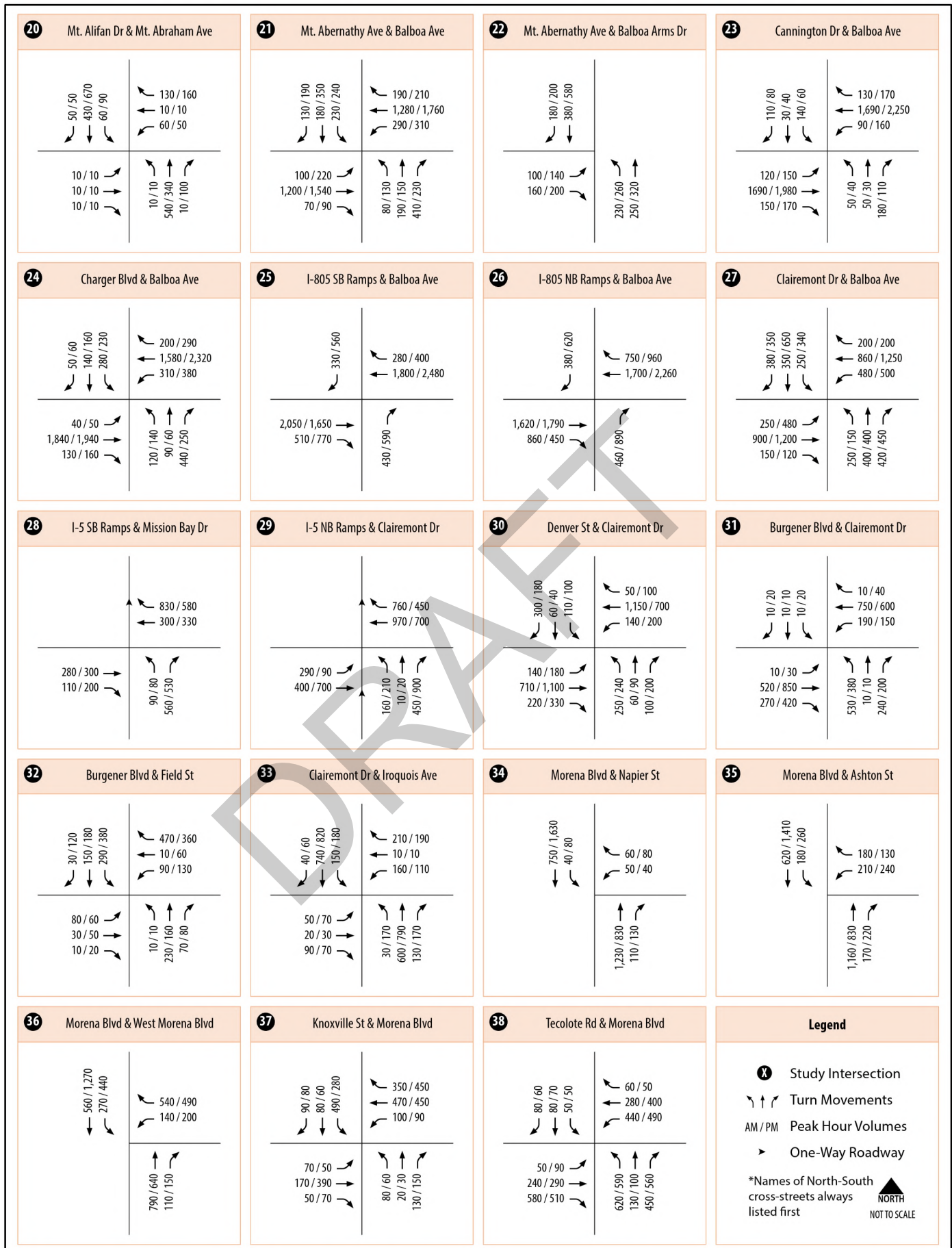
Traffic volumes for the Proposed Plan were derived from the SANDAG Series 13 Regional Plan (RP) model that was locally calibrated and customized for Clairemont. The project team analyzed the model outputs to estimate the traffic volumes upon full buildout of the Clairemont CPU, employing the City of San Diego's Mobility Adjustment Tool. This tool provides a structured approach to estimate future average daily traffic (ADT) volumes and to develop intersection turning movements (ITM) volumes, following the methodology outlined in the National Cooperative Highway Research Program Report (NCHRP) 255. These volumes were then adjusted to better reflect the land use assumptions from the customized SANDAG Series 13 RP model.

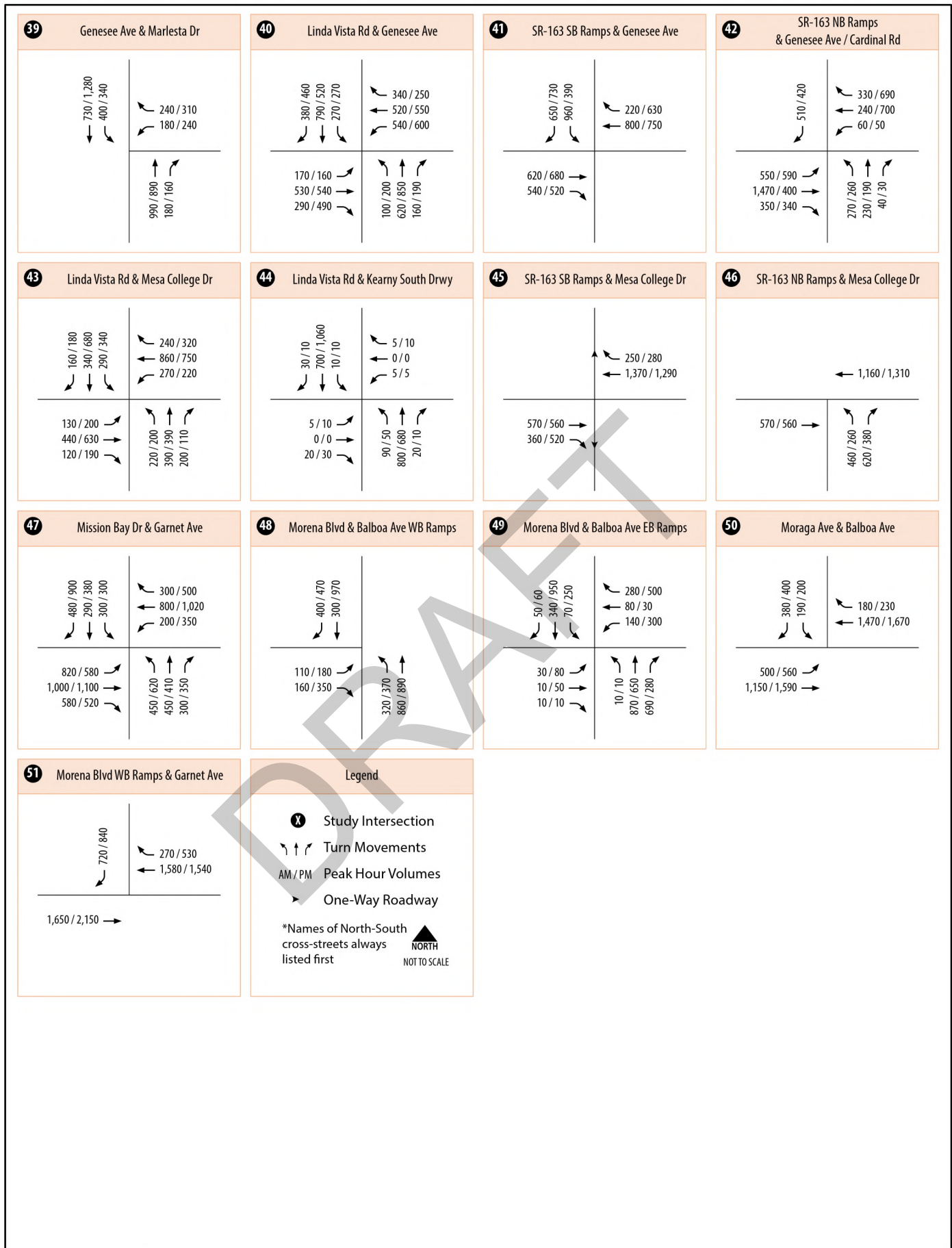
Adjustments to traffic volumes also considered changes in the roadway network layout and capacity, particularly the transformation of Genesee Avenue to provide flex lanes aimed at improving transit operations. The ADT under planned conditions for the Clairemont CPU is displayed in **Figure 8** and the ITM volumes are displayed in **Figure 9**.

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Vehicular Performance

This section documents the Level of Service (LOS) results for the Clairemont CPU under Proposed Plan conditions. The LOS for each roadway segment was determined utilizing the roadway geometrics illustrated in Figure 3, forecasted ADT under Proposed Plan conditions, and the roadway capacity thresholds per the City of San Diego Transportation Study Manual (COSDTSM). Analysis of intersection operations was performed utilizing the traffic analysis software Synchro, the assumed geometry displayed in Figure 4 and forecasted ITM volumes adhering to the operational analysis methods for both signalized and unsignalized intersections as specified in the 2022 Highway Capacity Manual (HCM 7). A summary of the analysis methodologies and underlying assumptions can be found in **Attachment E**.

Roadway Operation Analysis

Table 9 displays the Clairemont CPU roadway classification designations, capacity thresholds, forecasted average daily traffic, volume to capacity ratios, resulting levels of service, and planned bicycle facilities under Proposed Plan conditions. The design of the flex lanes, transit-only lanes, or shared bus/bike lanes should follow the appropriate Mobility Element roadway classification from the City of San Diego Street Design Manual, based on the total number of travel lanes regardless of shared or dedicated use. For instance, a 4-lane Major Arterial with two lanes dedicated to transit would refer to design requirements that correspond to those of a 4-lane Major Arterial. However, from an operational analysis standpoint, these flex lanes were excluded from the LOS analyses, as they do not contribute to general vehicular capacity. This approach provides a more accurate representation of vehicular LOS and driver experience at these locations.

As shown, the implementation of the Clairemont CPU preferred land uses scenario and roadway modifications would result in fifteen (15) roadway segments operating at substandard LOS E and thirty-eight (38) roadway segments operating at substandard LOS F. In comparison to the existing conditions reported in the Clairemont CPU Mobility Element - Existing Conditions Report, three (3) roadway segments operate at substandard LOS E and eighteen (18) roadway segments operate at substandard LOS F. Many of the segments that are projected to operate at LOS E or LOS F under the full buildout of the Proposed Plan include flexible lanes or high-quality bikeways, which could encourage people to use alternative modes of transportation and help reduce single-occupancy vehicle demand.

Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E) ¹	ADT	V/C	LOS	Bicycle Facility
Balboa Avenue	Morena Boulevard SB Ramps to Morena Boulevard NB Ramps	5-Lane Major Arterial	45,000	75,900	1.687	F	Class I (north side)
Balboa Avenue	Morena Boulevard NB Ramps to Moraga Avenue	5-Lane Major Arterial	45,000	60,500	1.344	F	Class I (north side)
Balboa Avenue	Moraga Avenue to Clairemont Drive	4-Lane Major Arterial	40,000	45,300	1.133	F	Class I (north side)
Balboa Avenue	Clairemont Drive to Genesee Avenue	4-Lane Major Arterial	40,000	44,600	1.115	F	Class IV One-Way Cycle Track
Balboa Avenue	Genesee Avenue to Mt. Abernathy Avenue	6-Lane Major Arterial	50,000	51,900	1.038	F	Class IV One-Way Cycle Track
Balboa Avenue	Mt. Abernathy Avenue to Mt. Albertine Avenue	6-Lane Major Arterial	50,000	60,400	1.208	F	Class IV One-Way Cycle Track
Balboa Avenue	Mt. Albertine Avenue to Charger Boulevard	6-Lane Major Arterial	50,000	66,100	1.322	F	Class II
Balboa Avenue	Charger Boulevard to I-805 SB Ramps	6-Lane Prime Arterial	60,000	78,500	1.308	F	Class IV One-Way Cycle Track
Balboa Avenue	I-805 SB Ramps to I-805 NB Off-ramp (WB)	6-Lane Prime Arterial	77,000 ²	74,400	0.966	E	Class IV One-Way Cycle Track
Balboa Avenue	I-805 NB Off-ramp (WB) to I-805 NB Off-ramp (EB)	6-Lane Prime Arterial	60,000	72,200	1.203	F	Class IV One-Way Cycle Track
Clairemont Drive	Kleefeld Avenue to Clairemont Mesa Boulevard	2-Lane Collector w/ TWLTL	15,000	11,400	0.760	D	Class IV One-Way Cycle Track
Clairemont Drive	Clairemont Mesa Boulevard to Chippewa Court	2-Lane Collector w/ TWLTL	15,000	28,900	1.927	F	Class II
Clairemont Drive	Chippewa Court to Balboa Avenue	3-Lane Major Arterial	30,000	30,700	1.023	F	Class II
Clairemont Drive	Balboa Avenue to Iroquois Avenue	2-Lane Major Arterial	20,000	28,300	1.415	F	Class IV One-Way Cycle Track
Clairemont Drive	Iroquois Avenue to Burgener Boulevard	2-Lane Major Arterial	20,000	22,600	1.130	F	Class IV One-Way Cycle Track
Clairemont Drive	Burgener Boulevard to Denver Street	2-Lane Collector w/ TWLTL	15,000	34,900	2.327	F	Class IV One-Way Cycle Track
Clairemont Drive	Denver Street to I-5 NB Ramps	4-Lane Major Arterial	40,000	45,900	1.148	F	Class IV One-Way Cycle Track

Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E) ¹	ADT	V/C	LOS	Bicycle Facility
Clairemont Drive	I-5 NB Ramps to I-5 SB Ramps	4-Lane Major Arterial	40,000	31,200	0.780	D	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Luna Avenue to Moraga Avenue	4-Lane Major Arterial	40,000	27,700	0.693	C	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Moraga Avenue to Clairemont Drive	4-Lane Major Arterial	40,000	32,100	0.803	D	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Clairemont Drive to Rolfe Road	4-Lane Major Arterial	40,000	31,900	0.798	D	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Rolfe Road to Clairemont Drive / Kleefeld Avenue	4-Lane Major Arterial	40,000	42,000	1.050	F	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Clairemont Drive / Kleefeld Avenue to Genesee Avenue	4-Lane Major Arterial	40,000	39,300	0.983	E	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Genesee Avenue to Doliva Drive	4-Lane Major Arterial	40,000	43,600	1.090	F	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	Doliva Drive to I-805 SB Off-ramp (WB)	5-Lane Major Arterial	45,000	53,900	1.198	F	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	I-805 SB Off-ramp (WB) to I-805 NB On-ramp (EB)	4-Lane Prime Arterial	64,100 ²	63,500	0.991	E	Class IV One-Way Cycle Track
Clairemont Mesa Boulevard	I-805 NB On-ramp (EB) to I-805 NB Off-ramp (EB)	6-Lane Major Arterial as a SMART Corridor*	40,000	51,000	1.275	F	- ³
Garnet Avenue	West of Mission Bay Drive	4-Lane Major Arterial	40,000	69,700	1.743	F	- ³
Garnet Avenue	Mission Bay Drive to I-5 SB On-ramp	5-Lane Major Arterial	45,000	53,800	1.196	F	Class I
Garnet Avenue	I-5 SB On-ramp to I-5 NB Off-ramp	5-Lane Major Arterial	45,000	75,100	1.669	F	Class I
Garnet Avenue	I-5 NB Off-ramp to Morena Boulevard SB On-ramp	5-Lane Major Arterial	45,000	86,800	1.929	F	Class I
Genesee Avenue	Governor Drive to SR-52	4-Lane Major Arterial	40,000	35,700	0.893	E	- ³
Genesee Avenue	SR-52 to Clairemont Mesa Boulevard	4-Lane Major Arterial (w/ Flex Lanes) ⁴	20,000	38,300	1.915	F	Class II
Genesee Avenue	Clairemont Mesa Boulevard to Bannock Avenue	4-Lane Major Arterial (w/ Flex Lanes) ⁴	20,000	27,700	1.385	F	Class III

Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E) ¹	ADT	V/C	LOS	Bicycle Facility
Genesee Avenue	Bannock Avenue to Mt. Herbert Avenue	4-Lane Major Arterial (w/ Flex Lanes) ⁴	20,000	30,500	1.525	F	Class II
Genesee Avenue	Mt. Herbert Avenue to Derrick Drive	6-Lane Major Arterial (w/ Flex Lanes) ^{5**}	40,000	29,500	0.738	C	Shared Bus/Bike Lane** (west side) Class II (east side)
Genesee Avenue	Derrick Drive to Mt. Etna Drive	6-Lane Major Arterial (w/ Flex Lanes) ⁵	40,000	35,700	0.893	E	Class II
Genesee Avenue	Mt. Etna Drive to Balboa Avenue	6-Lane Major Arterial (w/ Flex Lanes) ⁵	40,000	36,200	0.905	E	Class II
Genesee Avenue	Balboa Avenue to Mt. Alifan Drive	6-Lane Major Arterial (w/ Flex Lanes) ⁵	40,000	31,600	0.790	D	Class II
Genesee Avenue	Mt. Alifan Drive to Genesee Court	6-Lane Major Arterial (w/ Flex Lanes) ^{5**}	40,000	31,600	0.790	D	Shared Bus/Bike Lane** (west side) Class II (east side)
Genesee Avenue	Genesee Court to Boyd Avenue	5-Lane Major Arterial (w/ Flex Lanes) ⁶	30,000	26,500	0.883	E	Class II
Genesee Avenue	Boyd Avenue to Marlesta Drive	4-Lane Major Arterial (w/ Flex Lanes) ⁴	20,000	31,500	1.575	F	Class II
Genesee Avenue	Marlesta Drive to Osler Street	2-Lane Major Arterial	20,000	26,900	1.345	F	Class II
Genesee Avenue	Osler Street to Linda Vista Road	4-Lane Major Arterial	40,000	23,200	0.580	C	- ³
Genesee Avenue	Linda Vista Road to SR-163 SB Ramps	4-Lane Major Arterial	40,000	36,600	0.915	E	- ³
Genesee Avenue	SR-163 SB Ramps to SR-163 NB Ramps	3-Lane Major Arterial	30,000	41,500	1.383	F	- ³
Genesee Avenue	SR-163 NB Ramps to Cardinal Rd	3-Lane Major Arterial	30,000	24,100	0.803	D	- ³
Jutland Drive	Morena Boulevard to Luna Avenue	2-Lane Collector	8,000	22,600	2.825	F	Class II / Class III
Linda Vista Road	Stalmer Street to Mesa College Drive	2-Lane Collector w/ TWLTL	15,000	14,400	0.960	E	Class IV One-Way Cycle Track
Linda Vista Road	Mesa College Drive to Korink Avenue	4-Lane Major Arterial	40,000	20,000	0.500	B	- ³
Linda Vista Road	Korink Avenue to Genesee Avenue	4-Lane Major Arterial	40,000	20,300	0.508	B	- ³

Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E) ¹	ADT	V/C	LOS	Bicycle Facility
Mesa College Drive	Linda Vista Road to SR-163 SB Ramps	4-Lane Major Arterial	40,000	38,700	0.968	E	- 3
Mesa College Drive	SR-163 SB Ramps to SR-163 NB Ramps	4-Lane Prime Arterial	45,000	35,600	0.791	D	- 3
Mesa College Drive	SR-163 NB Ramps to Annrae Street	4-Lane Prime Arterial	45,000	37,400	0.831	D	- 3
Moraga Avenue	Clairemont Mesa Boulevard to Balboa Avenue	2-Lane Collector	8,000	10,500	1.313	F	Class III Moraga PI to Cadden Dr - Class II (east side)
Morena Boulevard	Jutland Drive to Avati Drive	4-Lane Major Arterial	40,000	42,600	1.065	F	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	Avati Drive to Balboa Avenue	4-Lane Major Arterial	40,000	41,900	1.048	F	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	Balboa Avenue to Balboa EB-Ramps	4-Lane Major Arterial	40,000	41,900	1.048	F	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	Balboa EB-Ramps to Gesner Street	3-Lane Major Arterial	30,000	30,100	1.003	F	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	Gesner Street to Napier Street	4-Lane Collector w/ TWLTL	30,000	29,900	0.997	E	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	Napier Street to West Morena Boulevard	4-Lane Collector w/ TWLTL	30,000	25,700	0.857	E	Class IV Two-Way Cycle Track (west side)
Morena Boulevard	West Morena Boulevard to Knoxville Street	2-Lane Collector	8,000	10,500	1.313	F	Class III
Morena Boulevard	Knoxville Street to Tecolote Road	4-Lane Collector	15,000	21,900	1.460	F	None
West Morena Boulevard	Morena Boulevard to Knoxville Street	4-Lane Collector w/ TWLTL	30,000	15,200	0.507	C	Class IV Two-Way Cycle Track (west side)
West Morena Boulevard	South of Knoxville Street	4-Lane Collector w/ TWLTL	30,000	18,500	0.617	C	Class IV Two-Way Cycle Track (west side)

Table 9 - Roadway Segment LOS Results – Proposed Plan Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E) ¹	ADT	V/C	LOS	Bicycle Facility
Mt. Alifan Drive	Mt. Acadia Boulevard to Genesee Avenue	4-Lane Collector	15,000	13,900	0.927	E	Class III
Mt. Alifan Drive	Genesee Avenue to Balboa Avenue	2-Lane Collector w/ TWLTL	15,000	14,200	0.947	E	Class IV One-Way Cycle Track
Mt. Abernathy Avenue	Balboa Avenue to Balboa Arms Drive	3-Lane Collector w/ TWLTL	22,500	17,300	0.769	D	Class III
Regents Road	North of SR-52	4-Lane Major Arterial	40,000	19,800	0.495	B	- ³
Regents Road	SR-52 to Luna Avenue	4-Lane Major Arterial	40,000	46,900	1.173	F	Class IV One-Way Cycle Track
Knoxville Street	Morena Boulevard to West Morena Boulevard	2-Lane Collector	8,000	6,600	0.825	E	Class III
Tecolote Road	I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	33,200	0.830	D	Class II

Source: CR Associates (2025)

Notes:

Bold indicates substandard LOS E or F.

¹ Roadway capacity based on the number of vehicular travel lanes.

² Capacity accounts for auxiliary lanes along this segment.

³ Segment outside of Clairemont Community Plan area. For planned roadway classifications and bikeways, refer to the adopted Community Plan and the Bicycle Master Plan, respectively.

⁴ Two vehicular travel lanes and two flex lanes within existing curb-to-curb width.

⁵ Four vehicular travel lanes and two flex lanes within existing curb-to-curb width.

⁶ Three vehicular travel lanes and two flex lanes within existing curb-to-curb width.

* Consistent with the Kearny Mesa Community Plan. A SMART Corridor is a 6-Lane Major with a flex lane in each direction that provides access between at least two freeways. These corridors increase safety, capacity, and efficiency by providing dedicated space for transit and other pooled services; manage demand in real-time; and maximize use of existing roadway space. The roadway segment analysis for a SMART Corridor applies a 25% ADT volume reduction to reflect multimodal use of 2 lanes and assumes the 4-Lane Major Arterial's daily traffic volume capacity and level of service standards.

** The proposed flex lane on the west side will function as a shared bus/bike Lane

ADT = Average Daily Traffic

V/C = Volume to Capacity Ratio

TWLTL = Two-Way Left-Turn-Lane

Intersection Operation Analysis

Table 10 displays the traffic control type, peak hour intersection delay, and peak hour LOS for all study area intersections. Intersection LOS calculation worksheets for the Proposed Plan conditions are provided in **Attachment F**.

Table 10 - Peak Hour Intersection LOS Results – Proposed Plan Conditions

#	Intersection	Peak Hour	Control	Delay	LOS
1	Regents Road & SR-52 WB Ramps	AM	Signal	22.8	C
		PM		44.6	D
2	Regents Road & SR-52 EB Ramps	AM	Signal	22.4	C
		PM		37.0	D
3	Genesee Avenue & SR-52 WB Ramps	AM	Uncontrolled / Free	-	-
		PM		-	-
4	Genesee Avenue & SR-52 EB Ramps	AM	Signal	164.6	F
		PM		74.2	E
5	Clairemont Mesa Boulevard & Luna Avenue	AM	Signal	36.9	D
		PM		40.2	D
6	Jutland Drive & Luna Avenue	AM	Signal ¹	36.0	D
		PM		53.4	D
7	Morena Boulevard & Jutland Drive	AM	Signal ²	6.9	A
		PM		11.7	B
8	Clairemont Mesa Boulevard & Moraga Avenue	AM	Signal	52.9	D
		PM		35.9	D
9	Clairemont Drive & Clairemont Mesa Boulevard	AM	Signal	40.0	D
		PM		46.0	D
10	Rolfe Road & Clairemont Mesa Boulevard	AM	Signal	36.6	D
		PM		26.0	C
11	Clairemont Drive / Kleefeld Avenue & Clairemont Mesa Boulevard	AM	Signal	47.7	D
		PM		41.2	D
12	Genesee Avenue & Clairemont Mesa Boulevard	AM	Signal	77.3	E
		PM		115.7	F
13	Limerick Avenue & Clairemont Mesa Boulevard	AM	Signal	53.5	D
		PM		46.2	D
14	I-805 SB Ramps & Clairemont Mesa Boulevard	AM	Uncontrolled / Free	-	-
		PM		-	-
15	I-805 NB Ramps & Clairemont Mesa Boulevard	AM	Signal	8.2	A
		PM		29.5	C
16	Genesee Avenue & Derrick Drive	AM	Signal	26.2	C
		PM		65.7	E
17	Genesee Avenue & Mt. Etna Drive	AM	Signal	47.3	D
		PM		51.8	D
18	Genesee Avenue & Balboa Avenue	AM	Signal	49.2	D
		PM		40.6	D
19	Genesee Avenue & Mt. Alifan Drive	AM	Signal	46.9	D
		PM		59.4	E
20	Mt. Alifan Drive & Mt. Abraham Avenue	AM	SSSC	23.4	C
		PM		25.4	D
21	Mt. Abernathy Avenue & Balboa Avenue	AM	Signal	27.6	C
		PM		42.6	D

Table 10 - Peak Hour Intersection LOS Results – Proposed Plan Conditions

#	Intersection	Peak Hour	Control	Delay	LOS
22	Mt. Abernathy Avenue & Balboa Arms Drive	AM	AWSC	15.4	C
		PM		29.9	D
23	Cannington Drive & Balboa Avenue	AM	Signal	33.8	C
		PM		40.1	D
24	Charger Boulevard & Balboa Avenue	AM	Signal	35.2	D
		PM		44.4	D
25	I-805 SB Ramps & Balboa Avenue	AM	Signal	7.2	A
		PM		14.0	B
26	I-805 NB Ramps & Balboa Avenue	AM	Signal	8.5	A
		PM		18.4	B
27	Clairemont Drive & Balboa Avenue	AM	Signal	53.1	D
		PM		85.3	F
28	I-5 SB Ramps & Mission Bay Drive	AM	SSSC	20.9	C
		PM		24.4	C
29	I-5 NB Ramps & Clairemont Drive	AM	Signal	44.7	D
		PM		47.7	D
30	Denver Street & Clairemont Drive	AM	Signal	53.7	D
		PM		44.3	D
31	Burgener Boulevard & Clairemont Drive	AM	Signal	35.9	D
		PM		46.3	D
32	Burgener Boulevard & Field Street	AM	AWSC	31.3	D
		PM		27.0	D
33	Clairemont Drive & Iroquois Avenue	AM	Signal	14.4	B
		PM		17.2	B
34	Morena Boulevard & Napier Street	AM	SSSC	34.3	D
		PM		26.3	D
35	Morena Boulevard & Ashton Street	AM	Signal	29.3	C
		PM		26.2	C
36	Morena Boulevard & West Morena Boulevard	AM	Signal	39.2	D
		PM		28.3	C
37	Knoxville Street & Morena Boulevard	AM	Signal	45.2	D
		PM		25.8	C
38	Tecolote Road & Morena Boulevard	AM	Signal	42.2	D
		PM		48.6	D
39	Genesee Avenue & Marlesta Drive	AM	Signal	54.0	D
		PM		47.7	D
40	Linda Vista Road & Genesee Avenue	AM	Signal	48.3	D
		PM		48.1	D
41	SR-163 SB Ramps & Genesee Avenue	AM	Signal	11.6	B
		PM		9.7	A
42	SR-163 NB Ramps & Genesee Avenue / Cardinal Road	AM	Signal	52.6	D
		PM		33.7	C
43	Linda Vista Road & Mesa College Drive	AM	Signal	34.4	C
		PM		43.2	D
44	Linda Vista Road & Kearny South Driveway	AM	SSSC	18.8	C
		PM		13.8	B
45	SR-163 SB Ramps & Mesa College Drive	AM	Uncontrolled / Free	-	-
		PM		-	-
46	SR-163 NB Ramps & Mesa College Drive	AM	Signal	9.8	A
		PM		9.5	A

Table 10 - Peak Hour Intersection LOS Results – Proposed Plan Conditions

#	Intersection	Peak Hour	Control	Delay	LOS
47	Mission Bay Drive & Garnet Avenue	AM	Signal	54.5	D
		PM		53.7	D
48	Morena Boulevard & Balboa Avenue WB Ramps	AM	Signal	10.3	B
		PM		32.6	C
49	Morena Boulevard & Balboa Avenue EB Ramps	AM	Signal	26.5	C
		PM		31.2	C
50	Moraga Avenue & Balboa Avenue	AM	Signal	35.3	D
		PM		47.3	D
51	Morena Boulevard WB Ramps & Garnet Avenue	AM	Signal ³	0.8	A
		PM		0.9	A

Source: CR Associates (2025)

Note:

Bold indicates substandard LOS E or F.

SSSC – Side Street Stop Controlled AWSC – All Way Stop Controlled

¹ Improved from existing three-way stop-controlled intersection to a signalized intersection.

² Improved from existing all-way stop-controlled intersection to a signalized intersection.

³ Intersection improved from existing uncontrolled/free intersection to signalized intersection per the Balboa Avenue Station Area Specific Plan (BASASP)

As shown, the implementation of the Clairemont CPU preferred land use scenario would result in one (1) intersection operating at substandard LOS E and one (1) intersection at substandard LOS F during the AM peak hour. The PM peak hour would result in three (3) intersections at substandard LOS E and two (2) intersections at substandard LOS F. This represents a change from the conditions described in the Clairemont CPU Mobility Element - Existing Conditions Report, in which all project study intersections operate at LOS D or better during the AM peak hour, while three (3) intersections operate at substandard LOS E and two (2) intersections operate at substandard LOS F during the PM peak hour.

95th Percentile Queue Analysis

A 95th percentile queueing analysis was conducted using Synchro 11 software at all study intersections adjacent to freeway ramps. **Table 11** displays queueing analysis results under Proposed Plan conditions. Intersection queueing reports are provided in **Attachment G**.

Table 11 - 95th Percentile Queue Results – Proposed Plan Conditions

#	Intersection	Control Type	Lane Group	Storage Length	95 th Percentile Queue ¹		Excess Queue	
					AM Peak	PM Peak	AM Peak	PM Peak
1	Regents Road & SR-52 WB Ramps	Signal	WBTL	1,240	325	1,000	0	0
			WBR	250	100	125	0	0
			NBL	160	125	200	0	40
			SBR	400	75	75	0	0
2	Regents Road & SR-52 EB Ramps	Signal	EBL	335	250	125	0	0
			EBTR	1,575	250	1,100	0	0
			SBL	90	400	200	310	110
4	Genesee Avenue & SR-52 EB Ramps	Signal	WBL	1,080	150	500	0	0
			WBR	200	75	100	0	0
			SBL	430	800	750	370	320
15	I-805 NB Ramps & Clairemont Mesa Boulevard	Signal	NBR	745	100	625	0	0
25	I-805 SB Ramps & Balboa Avenue	Signal	SBR	1,000	100	175	0	0
26	I-805 NB Ramps & Balboa Avenue	Signal	NBR	970	125	275	0	0
29	I-5 NB Ramps & Clairemont Drive	Signal	EBL	230	275	200	45	0
			WBR	160	100	100	0	0
			NBTL	1,142	175	150	0	0
			NBR	420	550	1,100	130	680
41	SR-163 SB Ramps & Genesee Avenue	Signal	SBL	1,300	350	175	0	0
			SBR	490	300	175	0	0
42	SR-163 NB Ramps & Genesee Avenue / Cardinal Road	Signal	EBL	190	350	375	160	185
			WBR	135	75	150	0	15
46	SR-163 NB Ramps & Mesa College Drive	Signal	SBR	1,050	50	75	0	0
			NBL	1,215	125	100	0	0
			NBR	1,215	125	75	0	0

Source: CR Associates (2025)

Notes:

¹ Queues are rounded to the nearest 25 feet to represent one vehicle length.

Bold indicates excess queue extending past available storage.

As shown in Table 11, 95th percentile queue is anticipated to exceed available storage for the following seven (7) movements at five (5) intersections:

1. Regents Road & SR-52 WB Ramps
 - Northbound Left-Turn – Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 40 feet during the PM peak hour.
2. Regents Road & SR-52 EB Ramps
 - Southbound Left-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 310 feet during the AM peak hour and 110 feet during the PM peak hour.
4. Genesee Avenue & SR-52 EB Ramps
 - Southbound Left-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 370 feet during the AM peak hour and 320 feet during the PM peak hour.

29. I-5 NB Ramps & Clairemont Drive

- Eastbound Left-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 45 feet during the AM peak hour.
- Northbound Right-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 130 feet during the AM peak hour and 680 feet during the PM peak hour.

42. SR-163 NB Ramps & Genesee Avenue / Cardinal Road

- Eastbound Left-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 160 feet during the AM peak hour and 185 feet during the PM peak hour.
- Westbound Right-Turn - Under Proposed Plan conditions, the 95th percentile queue would exceed available storage by 15 feet during the PM peak hour.

Concept Improvements

As part of the Clairemont Community Plan Update, five (5) conceptual designs have been developed to improve safety, mobility, and connectivity within the community. Each concept targets a key location and applies innovative design strategies to enhance multimodal access, reduce conflicts, and support active transportation. The following section provides an overview of each conceptual design, highlighting the specific improvements proposed at each location. Detailed descriptions, accompanying graphics, and design features are provided to illustrate the vision for a safer and more accessible transportation network in the Clairemont community.

Clairemont Drive and Clairemont Mesa Boulevard (Alternative Concept)

As part of the Clairemont Community Plan Update, a protected intersection alternative concept was explored at the intersection of Clairemont Drive and Clairemont Mesa Boulevard, as displayed in **Figure 10**. The concept is designed to enhance safety and improve multimodal access for all users, including pedestrians, bicyclists, and motorists, aligning with the City of San Diego's Vision Zero goals and the Climate Action Plan (CAP) mobility targets.

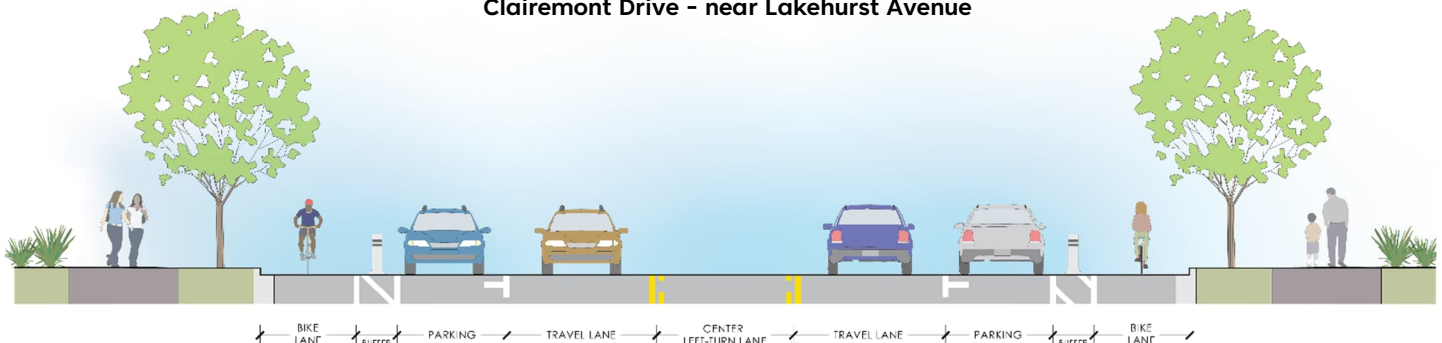
The potential intersection design incorporates the following key features:

- **Separated Bikeways and Crossings:** One-way cycle tracks with physical separation from vehicular lanes extend through the intersection. Green pavement markings increase the visibility of bike facilities and guide cyclists through the conflict zones safely. Bike crossings are set back from the vehicle lanes to enhance sight lines and reduce turning conflicts.
- **Corner Safety Islands:** Concrete corner islands provide a physical buffer between vehicles and vulnerable users. These islands shorten pedestrian crossing distances, offer waiting areas for cyclists, and facilitate safer turning movements for vehicles by reducing speeds at the intersection corners.
- **High-Visibility Crosswalks:** Bold, high-visibility crosswalks are included on all legs of the intersection to improve pedestrian safety. The wide crosswalks are set back from the intersection to accommodate the separated bikeways and minimize conflicts between pedestrians and turning vehicles.

Figure 10 – Conceptual Protected Intersection at Clairemont Drive and Clairemont Mesa Boulevard



Clairemont Drive - near Lakehurst Avenue



- **Signalization Enhancements:** Traffic signals would be upgraded to include dedicated bicycle signals and pedestrian heads, promoting organized and safe crossing movements. The potential for leading pedestrian intervals (LPI) and dedicated bike signal phases could also be considered to further enhance safety.
- **ADA-Compliant Features:** The design incorporates ADA-compliant curb ramps with tactile warning strips, ensuring accessibility for all users, including those with disabilities.
- **Context-Sensitive Design:** The protected intersection is integrated into the urban fabric of Clairemont, supporting adjacent land uses such as commercial areas, residential developments, and community amenities. The design enhances first-mile/last-mile connectivity, encouraging active transportation, and reducing reliance on single-occupancy vehicles.



This protected intersection could serve as a cornerstone for safer, more efficient mobility in the Clairemont community. It complements broader efforts in the Mobility Element to create a connected network of safe, convenient, and comfortable facilities for people walking, biking, or utilizing transit. By prioritizing the needs of non-motorized users and applying innovative best practices in intersection design, the protected intersection concept aims to significantly reduce conflicts, improve traffic operations, and contribute to a more sustainable and livable Clairemont.

It is important to note that this conceptual design is an alternative concept shown for illustrative purposes only and does not reflect the geometry analyzed at the Clairemont Drive and Clairemont Mesa Boulevard intersection as documented within this MTR. Final improvements, intersection geometry, and design details will need to be determined through future detailed engineering analyses.

Morena Boulevard and Balboa Avenue

At the intersection of Balboa Avenue and Morena Boulevard, the proposed concept builds upon the existing grade-separated configuration, as displayed in **Figure 11**. Under existing conditions, multiple ramps connect Morena Boulevard to Balboa Avenue, facilitating a series of free-flowing movements that may result in high vehicle speeds and potential numerous pedestrian and bicycle conflict points.

The proposed improvements focus on reconfiguring and consolidating these ramps to simplify vehicle movements and enhance safety for all users.

Key design features include:

- **Ramp Consolidation:** The existing multiple ramp connections will be consolidated into a singular signalized controlled access point. This reduction in the number of free-flowing movements is aimed at minimizing conflict points and improving overall safety for pedestrians and bicyclists.
- **Pedestrian and Bicycle Enhancements:** Improved pedestrian crossings and continuous bicycle facilities (two-way cycle track along Morena Blvd and multi-use path along Balboa Avenue) are proposed to promote safer and more direct connections across the intersection.
- **Roadway Widening on Balboa Avenue:** Balboa Avenue is proposed to be widened in the westbound direction from two lanes to three lanes. This improvement will increase capacity and improve traffic flow for vehicles traveling westbound.

This reconfiguration is intended to maintain regional traffic mobility while substantially improving local access and safety. The design supports the community's broader goals of promoting active transportation and improving the multimodal environment around this key intersection, including connections to nearby transit facilities such as the Balboa Avenue Trolley Station. Additionally, these improvements align with the Balboa Avenue Station Area Specific Plan (BASASP)¹ as the following improvements are described:

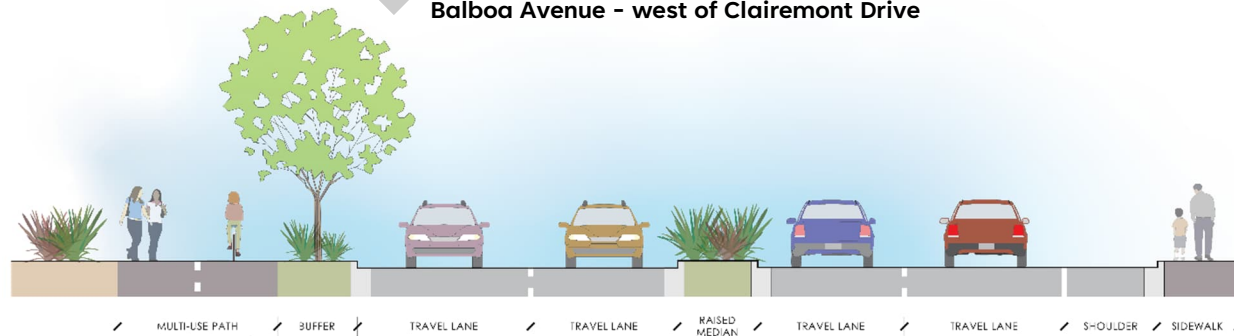
- Support the modification of westbound Balboa Avenue travel lanes to provide three westbound lanes and two eastbound lanes from Moraga Avenue to Morena westbound ramps.
- Support the removal of the northbound Morena Boulevard to westbound Balboa Avenue ramp to remove barriers that deter bicyclists and pedestrians along the roadway.
- Support the modification of the Morena Boulevard ramp roadway and the existing traffic signal at Morena Boulevard north of Balboa Avenue to accommodate northbound Morena Boulevard traffic traveling west to Balboa Avenue.
- Support the installation of a traffic signal at the westbound Balboa Avenue and Morena Boulevard ramps to provide safe crossings for pedestrians and bicyclists while maintaining right turning movements at the intersection.
- Support the removal of the free-right movements at intersections with Morena Boulevard.

¹ [Balboa Avenue Station Area Specific Plan](#)

Figure 11 – Conceptual Improvements at Morena Boulevard and Balboa Avenue



Balboa Avenue - west of Clairemont Drive



Clairemont Mesa Boulevard and Frink Avenue

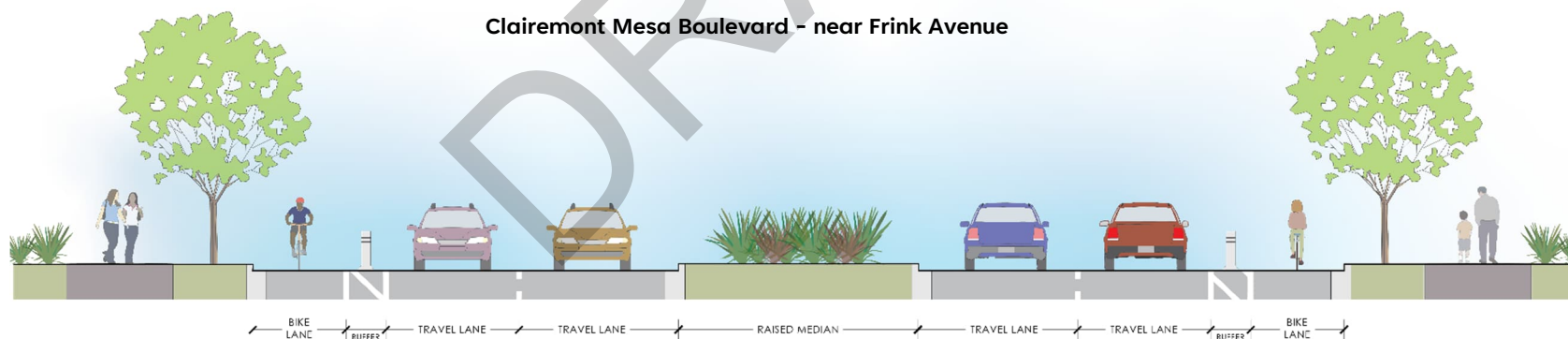
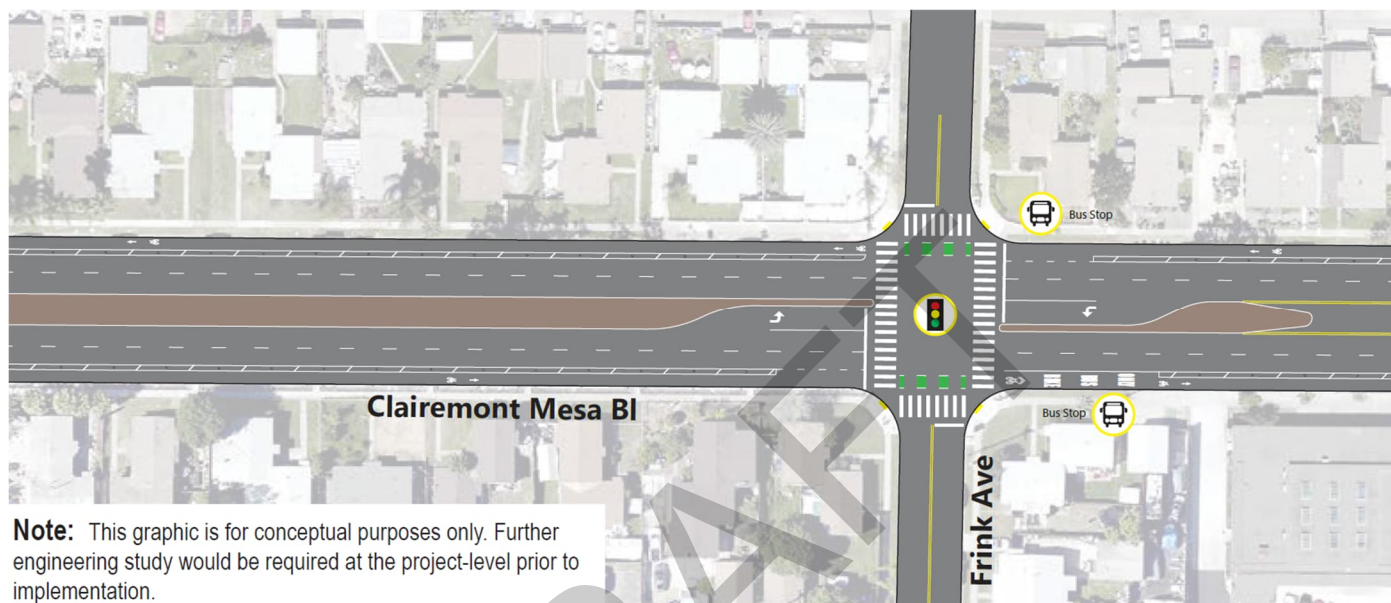
The intersection of Clairemont Mesa Boulevard and Frink Avenue is proposed for enhancements as displayed in **Figure 12** that prioritize multimodal safety and access, particularly for non-motorized users.

Key design features include:

- **Dedicated Bicycle Facilities:** Buffered or separated bikeways along Clairemont Mesa Boulevard, promoting a safer and more comfortable environment for cyclists.
- **Shared Bus-Bike Lane:** The design includes a bus-bike segment east of Frink Avenue, allowing bicycles and buses to share space. This facilitates access for pedestrians and/or cyclists to access public transit.
- **No-Parking Zone Near Intersection:** Parking restrictions are proposed near the intersection to improve sight lines, enhance safety for turning movements, and accommodate improved bike and pedestrian facilities.
- **Traffic Calming Measures:** Narrower travel lanes are being considered to slow vehicle speeds and promote a safer, more walkable environment.

This intersection improvement aligns with the overall Mobility Element goal of creating a safer and more accessible community by enhancing key pedestrian and bicycle connections.

Figure 12 – Conceptual Improvements at Frink Avenue and Clairemont Mesa Boulevard



Genesee Avenue and Mt. Alifan Drive

The proposed enhancements at the Genesee Avenue and Mt. Alifan Drive intersection, as displayed in **Figure 13**, focus on improving transit and bicycle facilities along one of Clairemont's busiest corridors. Genesee Avenue serves as the only continuous north-south corridor that traverses through the Clairemont community, providing critical connectivity to adjacent neighborhoods such as University City to the north and Linda Vista to the south.

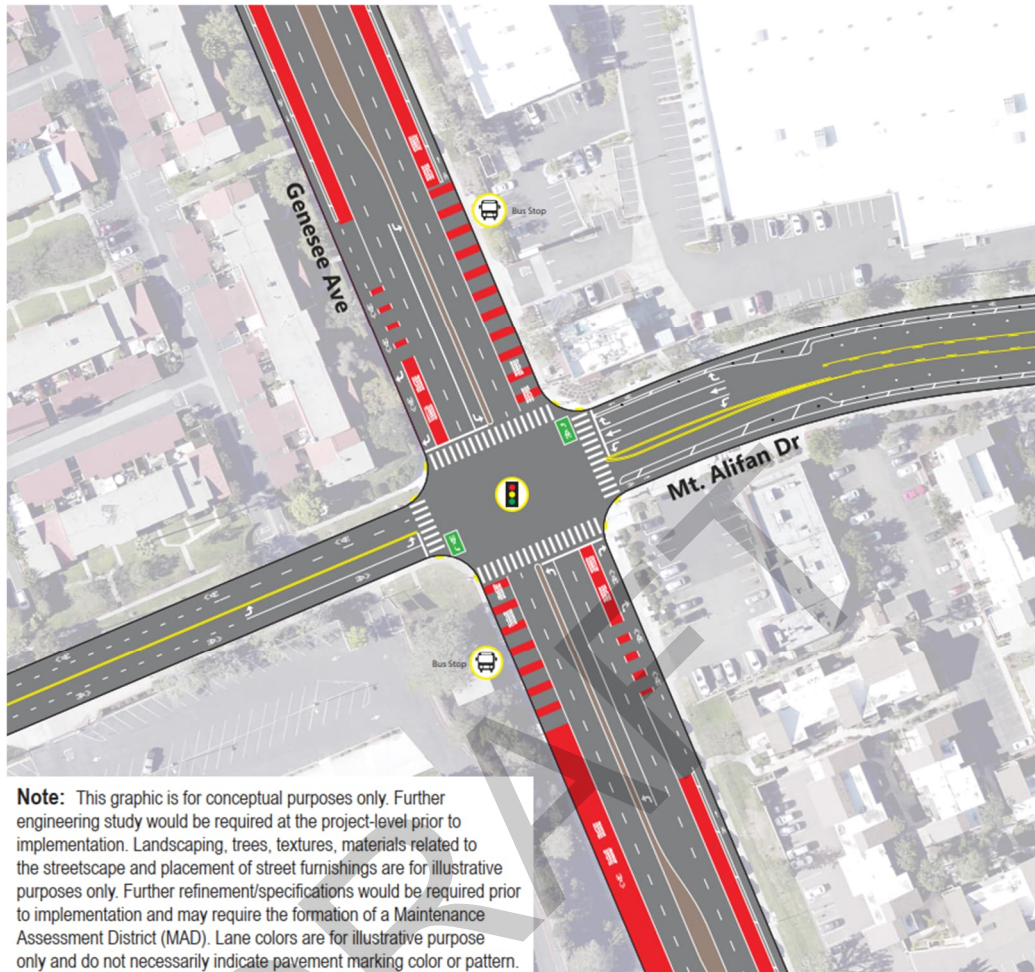
Key design features include:

- **Flex Lanes (Bus-Only Lanes):** Dedicated bus-only lanes along Genesee Avenue will facilitate high-frequency and efficient transit operations. The lanes are intended to support bus rapid transit (BRT) services and improve overall transit reliability. However, other transit improvements may be considered as alternatives or complements to flex lanes, depending on funding availability and design constraints. These could include transit signal priority (TSP), queue jump lanes, bus bulb-outs, or enhanced bus stops with real-time arrival information and shelters.
- **Enhanced Bus Stops:** Upgraded bus stops with amenities such as shelters, seating, and real-time arrival information are recommended to improve the rider experience.²
- **Bicycle Connectivity:** Green bike boxes positioned at the intersection approaches provide a designated space for bicyclists to wait ahead of vehicles at signalized intersections, enhancing visibility and reducing potential conflicts with turning vehicles. This treatment improves safety for cyclists making through or turning movements and supports a more predictable and comfortable riding experience.

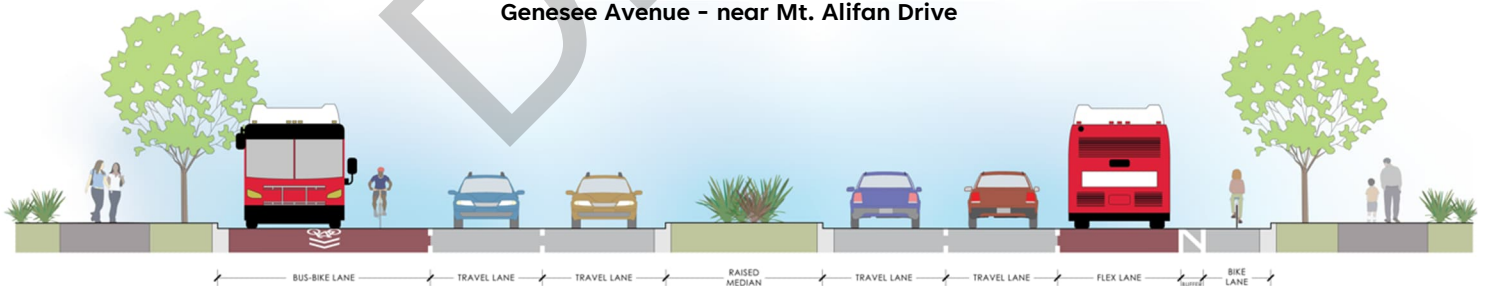
This design concept advances regional efforts to create a robust, multimodal transportation network by prioritizing transit and active transportation modes. Additionally, these improvements align with SANDAG's conceptual plans for Rapid Route 41 to operate along Genesee Avenue, connecting major regional destinations including Fashion Valley, Linda Vista, Clairemont Mesa, and the UC San Diego/UTC area. The Rapid 41 corridor is envisioned to include transit-priority treatments such as bus-only lanes, transit signal priority (TSP), and enhanced stations, many of which are reflected in the conceptual improvements planned at Mt. Alifan Drive. By integrating local intersection upgrades with regional transit strategies, the Genesee-Mt. Alifan concept supports broader efforts to enhance transit reliability, connectivity, and multimodal accessibility throughout the corridor.

² It is important to note that the City of San Diego does not have control over bus stop amenities. Therefore, it is recommended coordination take place between City of San Diego and San Diego Metropolitan Transit System (SDMTS). Additionally, transit amenities for each bus stop should be determined based on SDMTS' *Designing for Transit A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area* (February 2018).

Figure 13 – Conceptual Improvements at Genesee Avenue and Mt. Alifan Drive



Genesee Avenue - near Mt. Alifan Drive



Linda Vista Road and Mesa College Drive

At the intersection of Linda Vista Road and Mesa College Drive, as displayed in **Figure 14**, a concept with Complete Streets elements is proposed to support students, faculty, and staff accessing both Kearny High School and Mesa College, as well as surrounding community members.

Key design features include:

- **High-Visibility Crosswalks:** High-visibility crosswalks improve pedestrian comfort and safety.
- **Bikeway Improvements:** Dedicated and protected bikeways are proposed to create safe and direct connections to Kearny High School, Mesa College, and surrounding neighborhoods.

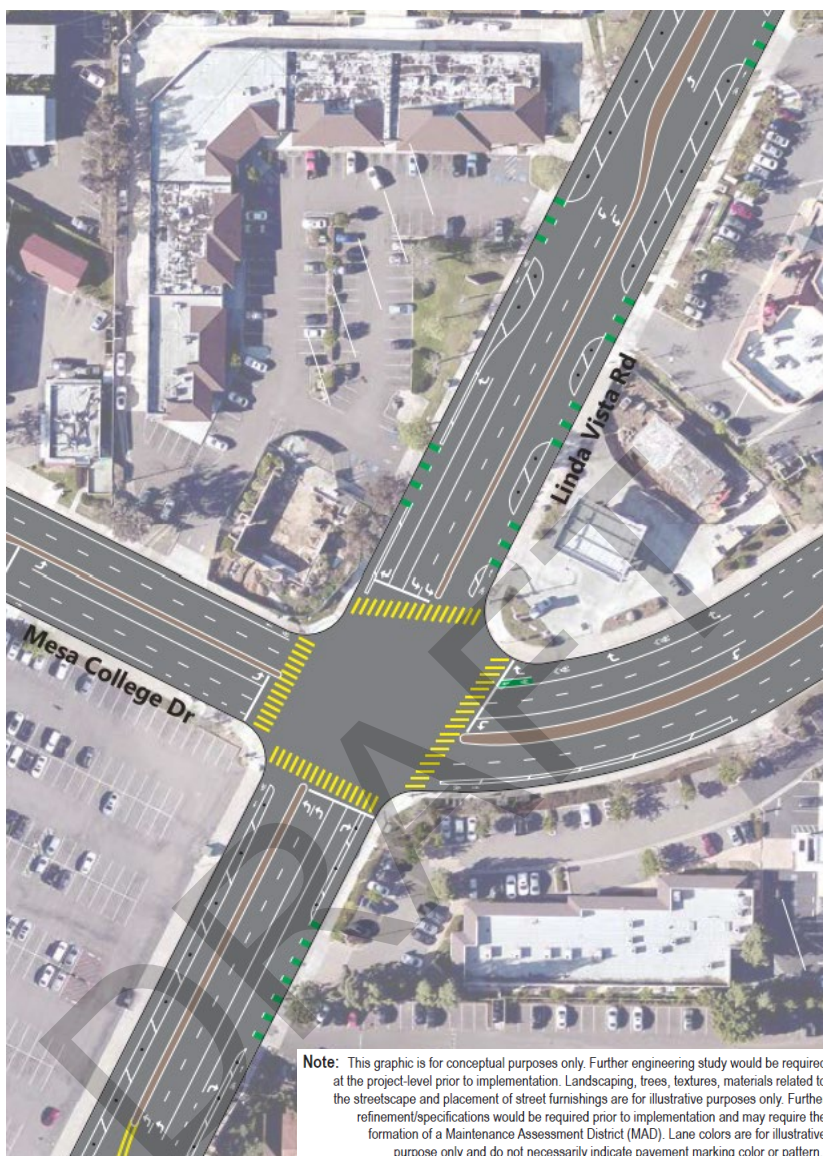
This concept promotes a more accessible, safe, and inviting environment for all modes, with a particular emphasis on enhancing access to education facilities and supporting first-mile/last-mile connectivity. Additionally, these improvements align with the Linda Vista Comprehensive Active Transportation Plan³ as the following recommendations are described:

- Provide buffered areas to the existing bicycle facilities (Class II bike lanes) to create more separation between the vehicular travel lanes and the bike lanes and sidewalk.
- Reduce travel lanes to accomplish the provision of buffered areas.

It is important to note that the concept proposes improvements on the eastern and southern legs of the intersection, which fall within the Linda Vista community. Therefore, coordination with the community will be necessary at the project level. This graphic is for conceptual purposes only. Further engineering study would be required prior to implementation.

³ [Linda Vista Comprehensive Active Transportation Plan](#)

Figure 14 – Conceptual Improvements at Intersection Linda Vista Road and Mesa College Drive



Goods Movement

The efficient movement of goods is vital to supporting Clairemont's diverse commercial corridors, facilitating local economic development, and ensuring convenient access to commercial goods and services for residents and businesses. To sustain these activities, the community's roadway network must maintain adequate accommodation for freight and delivery vehicles.

Clairemont has several key areas that generate (and are expected to continue generating) freight traffic, distributed primarily along major arterial corridors:

- Clairemont Mesa Boulevard, which serves as the community's central commercial spine, supporting a wide range of retail, service, dining establishments, and future mixed-use villages.
- Balboa Avenue, home to larger shopping centers, grocery stores, service-oriented businesses, and future mixed-use villages.
- Morena Boulevard, located on the community's western edge adjacent to the Interstate 5 corridor, is home to industrial uses, warehouses, and distribution centers primarily concentrated in the Rose Creek/Canyon Industrial District and Tecolote Gateway.

Most goods and freight in Clairemont are transported by trucks using the adjacent state and interstate highways. As outlined above, trucks primarily utilize Balboa Avenue, Clairemont Mesa Boulevard, and Morena Boulevard for goods movement. These thoroughfares facilitate efficient access to and from Clairemont's existing and planned neighborhood commercial areas, mixed-use villages, and industrial zones, while also connecting to the broader regional and interstate trucking networks. However, truck freight traffic can contribute to localized impacts, including increased noise, emissions, and congestion, especially along corridors adjacent to residential neighborhoods, schools, and parks.

According to the City of San Diego Municipal Code Chapter 8, Article 5, heavy freight vehicles exceeding two tons gross vehicle weight are prohibited from using specific residential streets not designated for truck traffic. Designated truck routes near Clairemont include Interstate 5, Interstate 805, and State Route 52, all of which are part of the national truck route network under the Surface Transportation Assistance Act (STAA). Transportation permits are required for oversized loads per California Vehicle Code §15 and are restricted during peak commute periods (7:00–9:00 AM and 4:00–6:00 PM) and within 30 minutes before sunset or after sunrise.

As Clairemont continues to evolve, it will be essential to balance the need for efficient goods movement and commercial vitality with the community's residential character and environmental goals. The CPU includes policies aimed at accommodating goods movement while minimizing the impacts of truck traffic, deliveries, and staging. Design considerations, such as appropriate curb and corner radii, designated loading and unloading areas, and sufficient vertical and horizontal clearances, help ensure that trucks can safely navigate roadways and intersections and coexist with multimodal facilities. Specific design concepts and operational features to facilitate goods movement will be further developed at the project level as infrastructure improvements and new development are implemented.

Attachment A - Blueprint Technical Memorandum - Supplemental Analysis

DRAFT



TO: Christine Mercado, TE; City of San Diego

FROM: Jonathan Sanchez, PE, TE; CR Associates
Joseph Perez, EIT; CR Associates

DATE: July 25, 2025

RE: Clairemont Community Plan Update vs. Blueprint SD – Traffic Operations Analysis Technical Memorandum

The Clairemont Community Plan Update (CPU) process was initiated in 2016 to guide future growth and development in the Clairemont community through the year 2050. As part of this effort, a Mobility Technical Report was drafted in 2022, which analyzed how the CPU's proposed land use scenario, referred to herein as the CPU P9 Scenario, could be supported by the future transportation network, with emphasis on multimodal mobility, network connectivity, and overall system performance.

To evaluate future traffic conditions, the analysis used the San Diego Association of Government's (SANDAG) Series 13 Activity Based Model (ABM), which was calibrated at the local level and specifically customized for the Clairemont CPU. The model incorporated the CPU P9 Scenario, which featured high density mixed-use centers and residential corridors, along with proposed mobility improvements designed to support active transportation and enhance transit access. For areas outside Clairemont, the model defaulted to land use and mobility assumptions from the City's General Plan and SANDAG's Regional Plan, as available at the time.

Since the development of the Mobility Technical Report, the City of San Diego adopted a General Plan Amendment, known as the Blueprint SD Initiative (Blueprint SD), in July 2024. Blueprint SD updates the City's land use and policy framework to promote infill development near high-quality transit, reduce vehicle miles traveled (VMT), and support the City's climate, housing, and mobility goals. As part of this initiative, the City customized SANDAG's Series 14 ABM to reflect Blueprint SD's citywide land use assumptions with the planned regional mobility network from the 2021 Regional Plan. For this memo, the transportation modeling and analysis conducted under this effort is referred to as the Blueprint SD Scenario.

While both the CPU P9 and Blueprint SD scenarios rely on the same underlying Sustainable Communities Strategy, which considers housing opportunities in relation to job access and transportation infrastructure, they differ in modeling sources, land use inputs, socioeconomic forecasts, and mobility investment assumptions, resulting in variations in projected regional growth traffic volumes. To evaluate the implications of these differences, a supplemental analysis was conducted comparing traffic operations results between the two scenarios. The purpose of this analysis is to assess the mobility recommendations and conclusions presented in the draft Mobility Technical Report (based on CPU P9 data) using the updated Blueprint SD data. This comparison ensures the Clairemont CPU's mobility strategy remains consistent with the City's most recent planning assumptions and policy direction under Blueprint SD.

Blueprint SD Model Background and Comparison

The travel demand model used for Blueprint SD was developed by customizing the adopted model from the 2021 Regional Plan. A separate analysis comparing the two found that the customized Blueprint SD model projects higher citywide VMT, population, and employment than the 2021 Regional Plan model. These differences reflect the distinct objectives of each effort: Blueprint SD is focused on strategically maximizing housing capacity within the City of San Diego, while the 2021 Regional Plan is centered around regional transportation planning based on projected population growth.

Although the Blueprint SD model forecasts an increase in citywide VMT, this growth is modest relative to the projected increases in population and employment. This suggests improved transportation efficiency under the Blueprint SD Scenario, with lower VMT per capita due to more higher-density development with greater access to transit and active transportation options, compared to the assumptions in the 2021 Regional Plan. To maintain alignment with regional trends and avoid overstating future roadway demands, traffic volumes generated by the Blueprint SD model are adjusted downward for use in community-level mobility infrastructure planning, such as ongoing Community Plan Updates (CPUs) and for comparison with the CPU P9 Scenario.

This supplemental analysis compared traffic volumes from the CPU P9 model and the adjusted Blueprint SD model across all roadway segments within the Clairemont CPU study area. On average, the adjusted Blueprint SD traffic model volumes were found to be lower than those from the CPU P9 model, supporting the conclusion that the CPU P9 model provided a conservative foundation for the draft mobility analysis in the Clairemont CPU Mobility Technical Report. However, several specific roadway segments were identified where the adjusted Blueprint SD model still forecasted higher traffic volumes than the CPU P9 model. These differences informed the selection of study locations for further evaluation in this memorandum, as described in the following section.

Project Description & Study Area

The focused study area for this supplemental analysis was developed to evaluate the potential differences in traffic operations between the CPU P9 and Blueprint SD scenarios, identify any additional localized operational issues or deficiencies that may need to be addressed in the Clairemont CPU, and determine whether updates to previously recommended mobility improvements are warranted. The selection of roadway segments and intersections was guided by the traffic operations analysis results from the CPU P9 Scenario, as prepared for the draft Mobility Technical Report, as well as the projected traffic volume changes under the Blueprint SD Scenario.

The study area includes locations projected to operate at a substandard level of service (LOS E or F) under the CPU P9 Scenario, or likely to approach these thresholds when considering Blueprint SD forecasts. Priority was given to major corridors where future growth in travel demand is expected to be most pronounced and where mobility improvements have been proposed. Among these, Genesee Avenue was identified as a critical corridor to assess due to the projected increase in traffic volumes under both scenarios. The Clairemont CPU also proposes converting an existing travel lane in each direction along Genesee Avenue, from SR-52 and Marlesta Drive, into flexible (flex) lanes designed to accommodate transit and other congestion-reducing mobility forms.

The following section outlines the specific roadway segments and intersections selected for evaluation.

Roadway Segments

- Clairemont Drive, between Kleefeld Avenue and Clairemont Mesa Boulevard
- Genesee Avenue, between Clairemont Mesa Boulevard and Bannock Avenue
- Genesee Avenue, between Bannock Avenue and Mt. Herbert
- Genesee Avenue, between Derrick Drive and Mt. Etna Drive
- Genesee Avenue, between Mt. Etna Drive and Balboa Avenue
- Genesee Avenue, between Genesee Court and Boyd Avenue
- Genesee Avenue, between Boyd Avenue and Marlesta Drive
- Linda Vista Road, between Stalmer Street and Mesa College Drive
- Morena Boulevard, between Gesner Street and Napier Street
- Morena Boulevard, between Napier Street and West Morena Boulevard
- Mt. Alifan Drive, between Balboa Avenue and Genesee Avenue

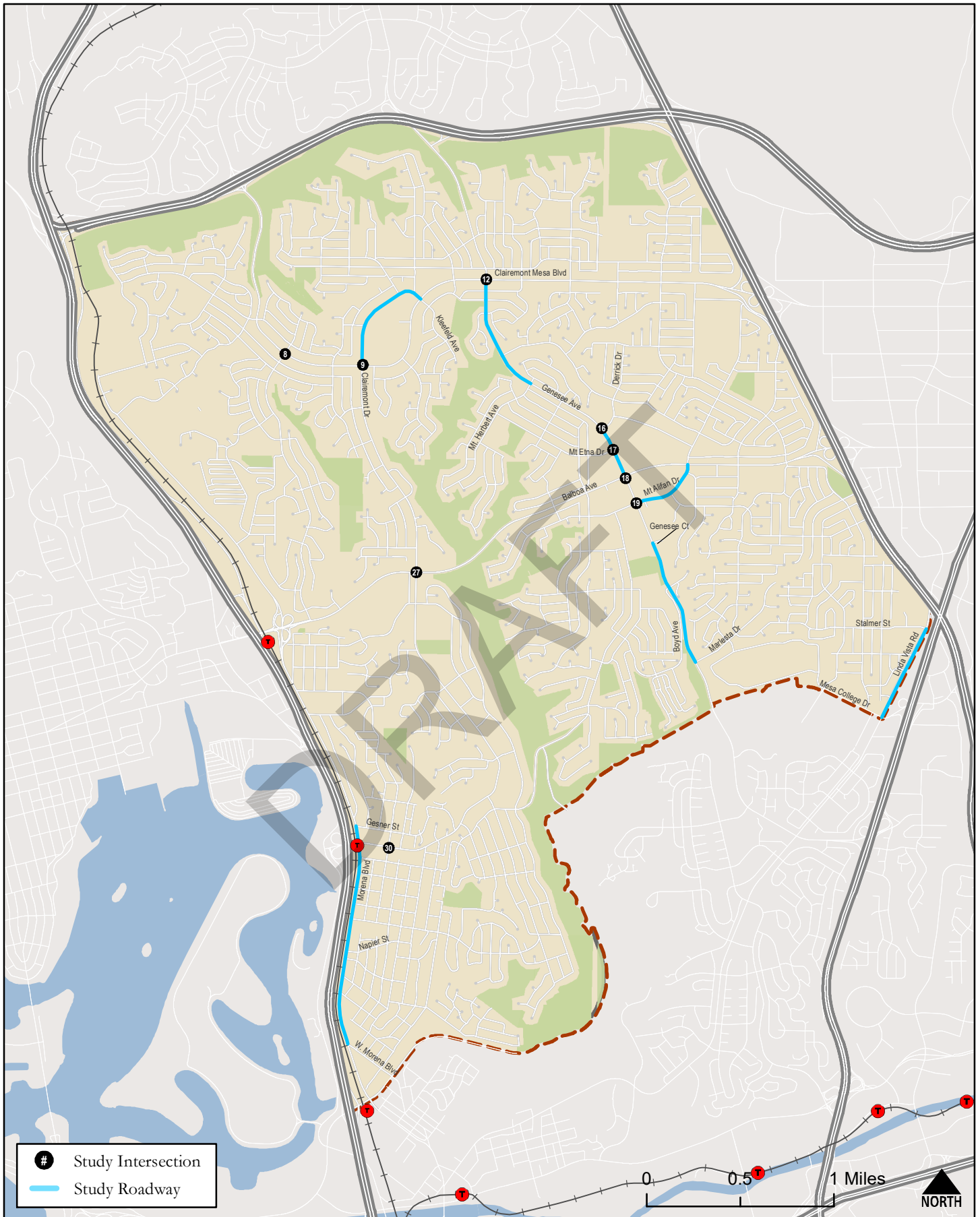
Intersections

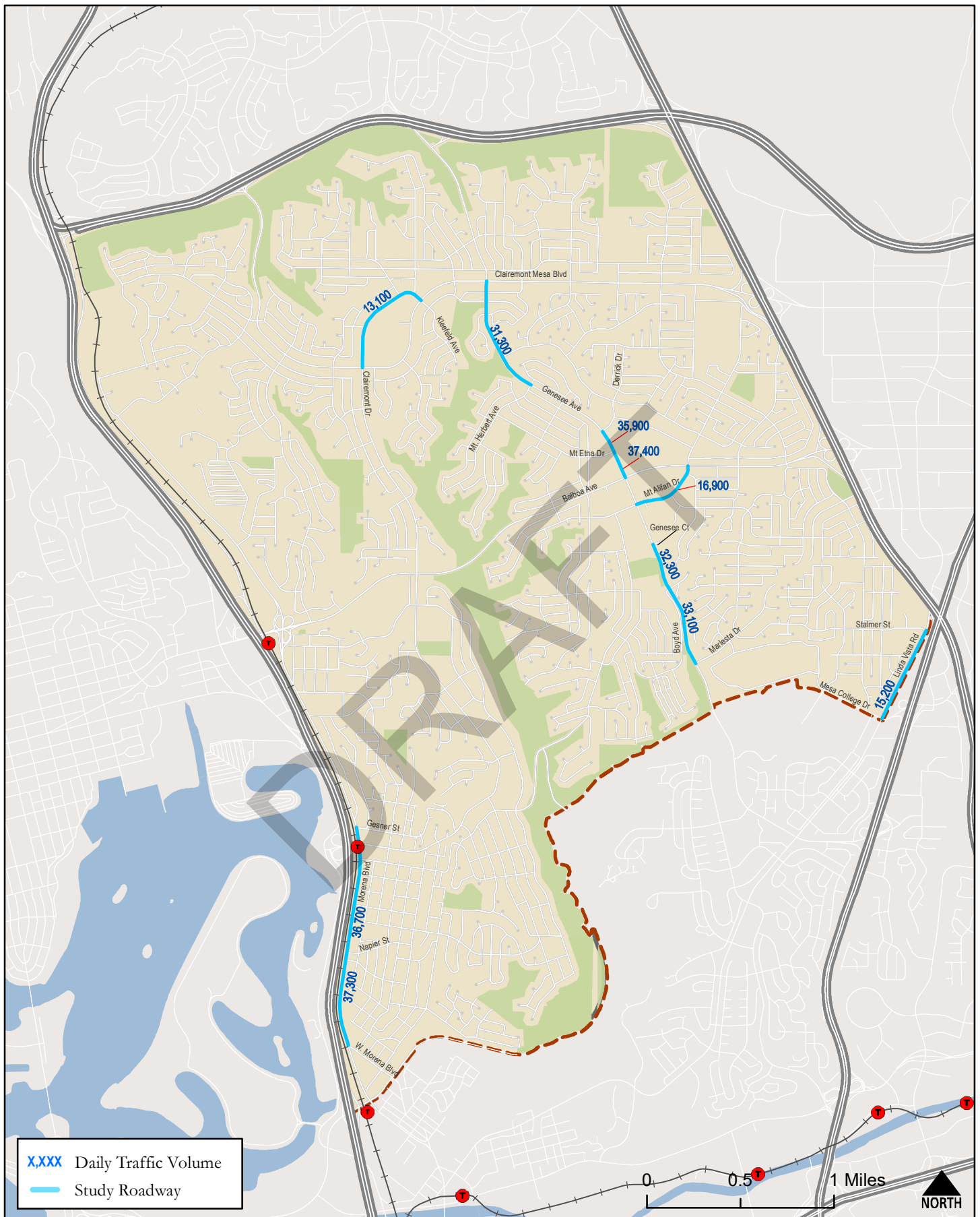
- **Intersections operating at LOS E or F in one or both peak hours under the CPU P9 Scenario (current analysis):**
 - 12. Genesee Blvd & Clairemont Mesa Blvd
 - 16. Genesee Blvd & Derrick Dr
 - 19. Genesee Blvd & Mt. Alifan Dr
 - 27. Clairemont Dr & Balboa Ave
- **Intersections approaching LOS E in one or both peak hours under the CPU P9 Scenario:**
 - 8. Moraga Ave & Clairemont Mesa Blvd
 - 9. Clairemont Dr & Clairemont Mesa Blvd
 - 17. Genesee Blvd & Mt. Etna Dr
 - 18. Genesee Blvd & Balboa Ave
 - 30. Denver St & Clairemont Dr

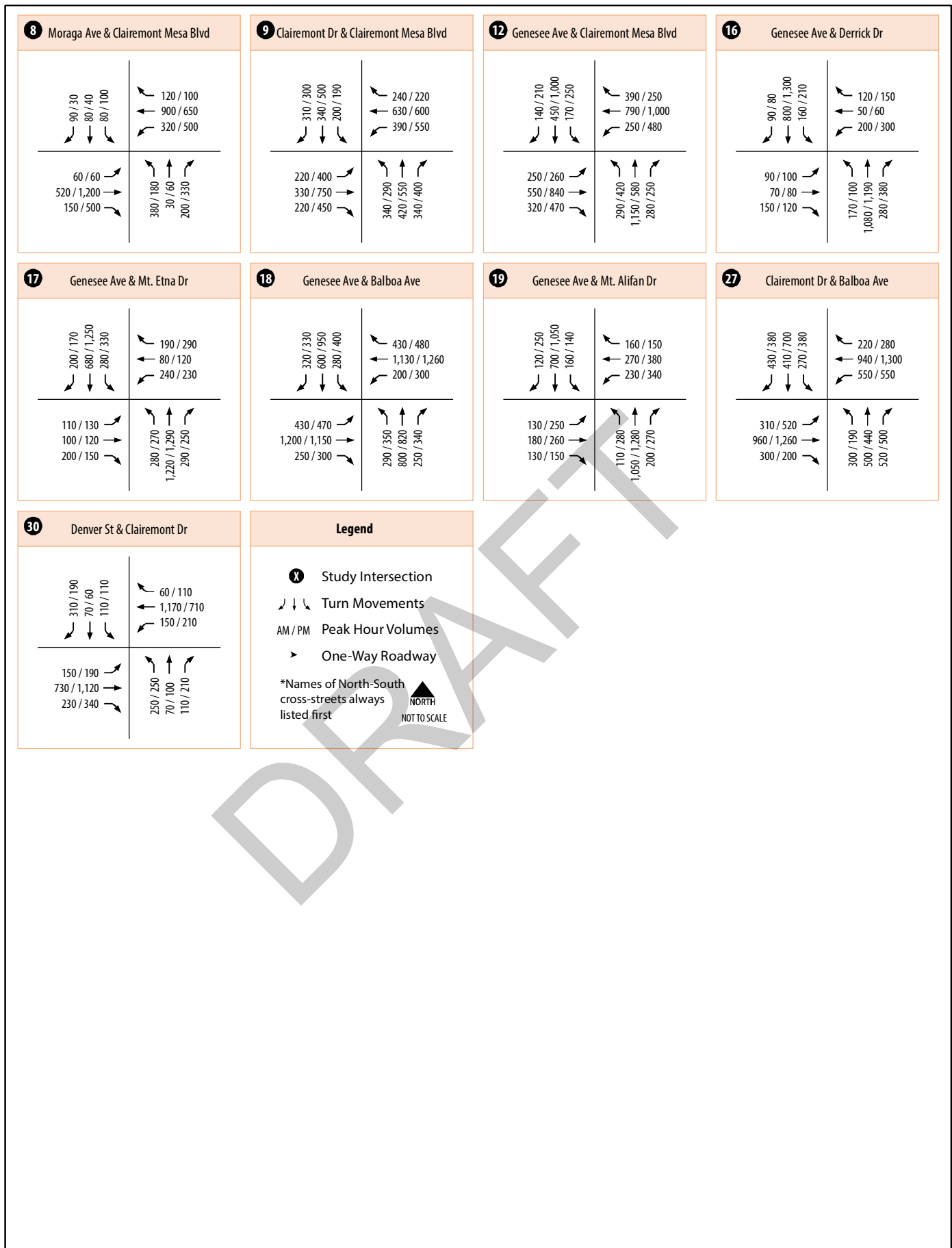
Figure 1 displays the study area for the supplemental analysis. **Figure 2** presents the roadway average daily traffic (ADT) volumes, while **Figure 3** displays the peak hour intersection turning movement volumes under the Blueprint SD Scenario.

The roadway and intersection operations analysis for this supplemental study was conducted using the methodology outlined in the City of San Diego's Transportation Study Manual (TSM). This approach is consistent with the analytical methods previously utilized in the Clairemont Community Plan Update (CPU) effort. Maintaining consistency in methodology ensures that the results remain comparable and aligned with the City's established transportation analysis standards.

LOS calculation worksheets for the CPU P9 Scenario are provided in the Clairemont CPU Mobility Technical Report, while the LOS calculation worksheets for the Blueprint Scenario are provided in **Attachment A-1**.









Roadway Analysis

Table 1 displays the roadway segment level of service (LOS) results under both the CPU P9 and Blueprint SD scenarios.

Table 1 - Roadway LOS Results

Roadway	Segment	Planned Classification Designation	Capacity (LOS E) ¹	CPU P9			Blueprint SD			
				ADT	V/C	LOS	ADT	V/C	LOS	ΔV/C
Clairemont Drive	Kleefeld Avenue to Clairemont Mesa Boulevard	2-Lane Collector w/ TWLTL	15,000	11,400	0.760	D	13,100	0.873	E	0.113
Genesee Avenue	Clairemont Mesa Drive to Bannock Avenue	4-Lane Major Arterial (with Flex Lanes) ²	20,000	27,700	1.385	F	31,300	1.565	F	0.180
Genesee Avenue	Bannock Avenue to Mt. Herbert Avenue	4-Lane Major Arterial (with Flex Lanes) ²	20,000	30,500	1.525	F	31,300	1.565	F	0.040
Genesee Avenue	Derrick Drive to Mt. Etna Drive	6-Lane Major Arterial (with Flex Lanes) ³	40,000	35,700	0.893	E	35,900	0.898	E	0.005
Genesee Avenue	Mt. Etna Drive to Balboa Avenue	6-Lane Major Arterial (with Flex Lanes) ³	40,000	36,200	0.905	E	37,400	0.935	E	0.030
Genesee Avenue	Genesee Court to Boyd Avenue	5-Lane Major Arterial (with Flex Lanes) ⁴	30,000	26,500	0.883	E	32,300	1.077	F	0.194
Genesee Avenue	Boyd Avenue to Marlesta Drive	4-Lane Major Arterial (with Flex Lanes) ²	20,000	31,500	1.575	F	33,100	1.655	F	0.080
Linda Vista Road	Stalmer Street to Mesa College Drive	2-Lane Collector w/ TWLTL	15,000	14,400	0.960	E	15,200	1.013	F	0.053
Morena Boulevard	Gesner Street to Napier Street	4-Lane Collector w/ TWLTL	30,000	29,900	0.997	E	36,700	1.223	F	0.226
Morena Boulevard	Napier Street to W. Morena Boulevard	4-Lane Collector w/ TWLTL	30,000	25,700	0.857	E	37,300	1.243	F	0.386
Mt. Alifan Drive	Genesee Avenue to Balboa Avenue	2-Lane Collector w/ TWLTL	15,000	14,200	0.947	E	16,900	1.127	F	0.180

Source: CR Associates (2025)

Notes:

LOS = Level of Service ADT = Average Daily Traffic V/C = Volume to Capacity Ratio TWLTL = Two-way Left-turn Lane **Bold** = LOS E or F

¹ Roadway Capacity based on number of vehicular travel lanes.

² Two vehicular travel lanes and two flex lanes within existing curb-to-curb width.

³ Four vehicular travel lanes and two flex lanes within existing curb-to-curb width.

⁴ Three vehicular travel lanes and two flex lanes within existing curb-to-curb width.

As shown in Table 1, all roadway segments would remain with the same LOS under the Blueprint SD Scenario, except for the following six (6) roadway segments:

- Clairemont Drive (Kleefeld Avenue to Clairemont Mesa Boulevard) - from LOS D (CPU P9) to LOS E (Blueprint SD).
- Genesee Avenue (Genesee Court to Boyd Avenue) - from LOS E (CPU P9) to LOS F (Blueprint SD).
- Linda Vista Road (Stalmer Street to Mesa College Drive) - from LOS E (CPU P9) to LOS F (Blueprint SD).
- Morena Boulevard (Gesner Street to Napier Street) – from LOS E (CPU P9) to LOS F (Blueprint SD).
- Morena Boulevard (Napier Street to W. Morena Boulevard) – from LOS E (CPU P9) to LOS F (Blueprint SD).
- Mt. Alifan Drive (Genesee Avenue to Balboa Avenue) – from LOS E (CPU P9) to LOS F (Blueprint SD).

Intersection Analysis

Table 2 displays the intersection LOS results under both the CPU P9 and Blueprint SD scenarios.

Table 2 - Peak Hour Intersection LOS Results

#	Intersection	Peak Hour	CPU P9		Blueprint SD		Δ in Delay
			Delay	LOS	Delay	LOS	
8	Moraga Ave. & Clairemont Mesa Blvd	AM	52.9	D	57.4	E	4.5
		PM	35.9	D	53.6	D	17.7
9	Clairemont Dr. & Clairemont Mesa Blvd	AM	40.0	D	52.3	D	12.3
		PM	46.0	D	66.4	E	20.4
12	Genesee Ave. & Clairemont Mesa Blvd	AM	77.3	E	89.3	F	12.0
		PM	115.7	F	139.1	F	23.4
16	Genesee Ave. & Derrick Dr.	AM	26.2	C	40.2	D	14.0
		PM	65.7	E	92.3	F	26.6
17	Genesee Ave. & Mt. Etna Dr.	AM	47.3	D	54.6	D	7.3
		PM	51.8	D	52.1	D	0.3
18	Genesee Ave. & Balboa Ave.	AM	49.2	D	62.4	E	13.2
		PM	40.6	D	63.2	E	22.6
19	Genesee Ave. & Mt. Alifan Dr.	AM	46.9	D	56.9	E	10.0
		PM	59.4	E	78.3	E	18.9
27	Clairemont Dr. & Balboa Ave.	AM	53.1	D	67.4	E	14.3
		PM	85.3	F	113.3	F	28.0
30	Denver St. & Clairemont Dr.	AM	53.7	D	54.2	D	0.5
		PM	44.3	D	50.0	D	5.7

Source: CR Associates (2025)

Notes:

Bold = LOS E or F

As shown in Table 2, the following seven (7) intersections would either degrade from an acceptable LOS D or better under the Blueprint SD Scenario, or potentially experience a worsening deficiency from LOS E to LOS F:

8. **Moraga Avenue & Clairemont Mesa Boulevard** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.
9. **Clairemont Drive & Clairemont Mesa Boulevard** would degrade from LOS D (PM) under CPU P9 to LOS E (PM) under Blueprint SD.
12. **Genesee Avenue & Clairemont Mesa Boulevard** would degrade from LOS E (AM) under CPU P9 to LOS F (AM) under Blueprint SD.
16. **Genesee Avenue & Derrick Drive** would degrade from LOS E (PM) under CPU P9 to LOS F (PM) under Blueprint SD.
18. **Genesee Avenue & Balboa Avenue** would degrade from LOS D (AM and PM) under CPU P9 to LOS E (AM and PM) under Blueprint SD.
19. **Genesee Avenue & Mt. Alifan Drive** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.
27. **Clairemont Drive & Balboa Avenue** would degrade from LOS D (AM) under CPU P9 to LOS E (AM) under Blueprint SD.

Figure 4 displays the roadway and intersection analysis results under the Blueprint SD Scenario.

Conclusion

While the CPU P9 travel demand model has been determined to provide a conservative and appropriate foundation for assessing future mobility needs within Clairemont, the supplemental operational analysis has identified additional potential roadway segment and intersection LOS deficiencies when using volume data derived from the Blueprint SD model. These following new deficiencies occur at locations where facilities are projected to operate at acceptable LOS D under the CPU P9 Scenario but would degrade to a substandard LOS E or F under the Blueprint SD Scenario:

- Clairemont Drive from Kleefeld Avenue to Clairemont Mesa Boulevard (roadway segment)
- Moraga Avenue & Clairemont Mesa Boulevard (AM Peak Hour) (intersection)
- Clairemont Drive & Clairemont Mesa Boulevard (PM Peak Hour) (intersection)
- Genesee Avenue & Balboa Avenue (AM and PM Peak Hours) (intersection)
- Genesee Avenue & Mount Alifan Drive (AM Peak Hour) (intersection)
- Clairemont Drive & Balboa Avenue (AM Peak Hour) (intersection)

These study locations were strategically selected for the supplemental analysis based on their projected traffic volumes under the Blueprint SD model or their proximity to LOS E or F thresholds under the CPU P9 Scenario. As such, the identification of new deficiencies was not unexpected. This was an intentional part of the analysis to uncover local traffic challenges that may arise under Blueprint SD conditions and to help determine whether any updates to the mobility recommendations in the draft Clairemont CPU's Mobility Technical Report might be needed.

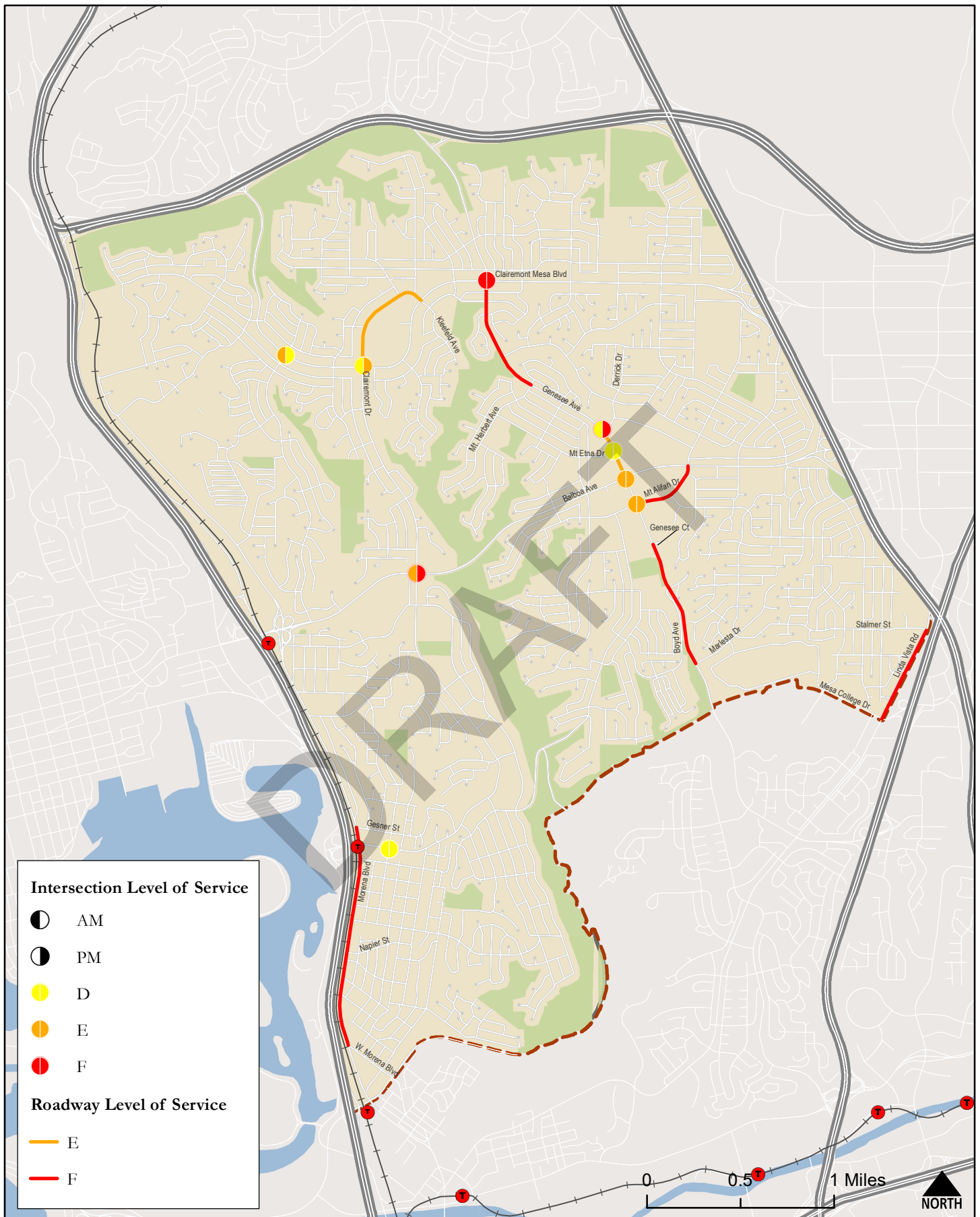
With the exception of the Moraga Avenue and Clairemont Mesa Boulevard intersection, all locations with newly identified deficiencies include mobility improvements proposed in the Clairemont CPU.

These improvements include repurposing vehicle lanes for one-way cycle tracks along portions of Clairemont Drive, and flex lanes for transit and other congestion-reducing mobility forms along Genesee Avenue. These proposed changes reflect a broader policy objective to reallocate roadway space to improve safety, comfort, and efficiency for people using sustainable travel modes.

The new LOS deficiencies identified using Blueprint SD forecasts can be attributed both to additional traffic volumes and the intentional reallocation of roadway space for multimodal infrastructure. Rather than indicating a need to revise the Clairemont CPU's mobility recommendations, these findings underscore the tradeoffs involved with advancing the City's mobility and sustainability goals, as outlined in the General Plan, Climate Action Plan, Mobility Master Plan, and Complete Streets Policy. They also reflect a conscious policy direction that values multimodal access and long-term community benefits over vehicle-only performance metrics.

In conclusion, while the Blueprint SD Scenario identifies additional vehicle LOS deficiencies, these are considered acceptable within the context of the City's vision for a safe, balanced, and sustainable transportation system for all users. Therefore, the originally developed mobility improvements for the Clairemont CPU remain unchanged.

DRAFT



Attachment **A-1** - Peak Hour Intersection LOS
Calculation Worksheets – Blueprint SD
Scenario

DRAFT

HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	520	150	320	900	120	380	30	200	80	80	90
Future Volume (veh/h)	60	520	150	320	900	120	380	30	200	80	80	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	63	547	133	337	947	105	400	32	191	84	84	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	4	4	4	2	2	2
Cap, veh/h	130	638	281	346	1074	477	456	33	196	282	282	285
Arrive On Green	0.07	0.18	0.18	0.06	0.10	0.10	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1753	3497	1543	1781	3554	1577	804	64	384	480	551	558
Grp Volume(v), veh/h	63	547	133	337	947	105	623	0	0	259	0	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1543	1781	1777	1577	1253	0	0	1589	0	0
Q Serve(g_s), s	4.5	19.7	10.0	24.5	34.2	8.0	51.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	19.7	10.0	24.5	34.2	8.0	63.2	0.0	0.0	11.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.64		0.31	0.32		0.35
Lane Grp Cap(c), veh/h	130	638	281	346	1074	477	686	0	0	849	0	0
V/C Ratio(X)	0.48	0.86	0.47	0.97	0.88	0.22	0.91	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	130	638	281	346	1074	477	712	0	0	879	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.47	0.47	0.47	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.8	51.5	47.6	60.5	56.2	44.4	32.0	0.0	0.0	18.4	0.0	0.0
Incr Delay (d2), s/veh	1.0	14.0	5.6	26.5	5.3	0.5	14.8	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	9.8	4.3	14.3	17.1	3.3	21.3	0.0	0.0	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.8	65.5	53.2	87.0	61.5	44.9	46.8	0.0	0.0	18.4	0.0	0.0
LnGrp LOS	E	E	D	F	E	D	D			B		
Approach Vol, veh/h	743			1389			623			259		
Approach Delay, s/veh	62.7			66.5			46.8			18.4		
Approach LOS	E			E			D			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.7	29.0		71.3	14.1	44.6		71.3				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	22.6	23.7		69.1	7.0	39.3		69.1				
Max Q Clear Time (g_c+I1), s	26.5	21.7		13.9	6.5	36.2		65.2				
Green Ext Time (p_c), s	0.0	1.1		1.2	0.0	2.3		1.3				
Intersection Summary												
HCM 7th Control Delay, s/veh	57.4											
HCM 7th LOS	E											

HCM 7th Signalized Intersection Summary 9: Clairemont Dr. & Clairemont Mesa Blvd

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	330	220	390	630	240	340	420	340	200	340	310
Future Volume (veh/h)	220	330	220	390	630	240	340	420	340	200	340	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	232	347	214	411	663	228	358	442	286	211	358	261
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	283	471	285	676	877	301	382	551	767	236	396	460
Arrive On Green	0.08	0.22	0.22	0.20	0.34	0.34	0.21	0.29	0.29	0.13	0.21	0.21
Sat Flow, veh/h	3456	2121	1282	3456	2562	881	1781	1870	1551	1767	1856	1550
Grp Volume(v), veh/h	232	290	271	411	460	431	358	442	286	211	358	261
Grp Sat Flow(s),veh/h/ln	1728	1777	1626	1728	1777	1666	1781	1870	1551	1767	1856	1550
Q Serve(g_s), s	8.6	19.7	20.3	14.1	29.8	29.9	25.7	28.4	4.9	15.3	24.4	18.5
Cycle Q Clear(g_c), s	8.6	19.7	20.3	14.1	29.8	29.9	25.7	28.4	4.9	15.3	24.4	18.5
Prop In Lane	1.00		0.79	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	395	361	676	608	570	382	551	767	236	396	460
V/C Ratio(X)	0.82	0.73	0.75	0.61	0.76	0.76	0.94	0.80	0.37	0.89	0.90	0.57
Avail Cap(c_a), veh/h	306	395	361	676	608	570	433	599	806	275	434	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	47.0	47.2	47.7	37.9	38.0	50.2	42.3	7.7	55.4	49.8	38.8
Incr Delay (d2), s/veh	5.8	4.6	5.4	1.1	8.5	9.1	25.1	7.4	0.3	24.5	21.1	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	9.2	8.7	6.2	14.2	13.5	14.0	14.1	2.3	8.4	13.5	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	64.5	51.6	52.6	48.9	46.5	47.0	75.2	49.7	8.0	79.9	70.9	40.3
LnGrp LOS	E	D	D	D	D	D	E	D	A	E	E	D
Approach Vol, veh/h	793			1302			1086			830		
Approach Delay, s/veh	55.7			47.4			47.1			63.6		
Approach LOS	E			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	34.1	32.3	33.1	15.0	49.6	21.8	43.6				
Change Period (Y+Rc), s	5.1	* 5.2	4.4	* 5.3	4.4	5.1	4.4	5.3				
Max Green Setting (Gmax), s	20.0	* 29	31.6	* 30	11.5	37.5	20.2	41.6				
Max Q Clear Time (g_c+I1), s	16.1	22.3	27.7	26.4	10.6	31.9	17.3	30.4				
Green Ext Time (p_c), s	0.3	2.1	0.2	1.3	0.0	3.0	0.1	3.2				

Intersection Summary

HCM 7th Control Delay, s/veh 52.3
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	550	320	250	790	390	290	1150	280	170	450	140
Future Volume (veh/h)	250	550	320	250	790	390	290	1150	280	170	450	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	258	567	285	263	832	329	305	1211	221	179	474	118
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	7	7	7	3	3	3	5	5	5
Cap, veh/h	199	931	565	1029	1783	901	360	901	1248	128	836	796
Arrive On Green	0.06	0.27	0.27	0.31	0.52	0.52	0.11	0.49	0.49	0.07	0.46	0.46
Sat Flow, veh/h	3401	3497	1506	3319	3413	1510	3428	1856	1568	1739	1826	1540
Grp Volume(v), veh/h	258	567	285	263	832	329	305	1211	221	179	474	118
Grp Sat Flow(s),veh/h/ln	1700	1749	1506	1659	1706	1510	1714	1856	1568	1739	1826	1540
Q Serve(g_s), s	7.6	18.5	15.0	7.7	20.0	12.6	11.4	63.1	0.0	9.6	24.7	5.2
Cycle Q Clear(g_c), s	7.6	18.5	15.0	7.7	20.0	12.6	11.4	63.1	0.0	9.6	24.7	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	199	931	565	1029	1783	901	360	901	1248	128	836	796
V/C Ratio(X)	1.30	0.61	0.50	0.26	0.47	0.37	0.85	1.34	0.18	1.39	0.57	0.15
Avail Cap(c_a), veh/h	199	931	565	1029	1783	901	498	901	1248	128	836	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	41.8	29.4	33.6	19.6	27.3	57.1	33.5	3.2	60.2	25.8	16.5
Incr Delay (d2), s/veh	165.8	3.0	3.2	0.0	0.9	1.1	7.2	162.5	0.0	217.7	0.6	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	8.3	5.6	3.1	8.0	4.2	5.2	67.3	1.1	11.9	10.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	227.0	44.7	32.6	33.7	20.5	28.5	64.3	196.0	3.2	277.9	26.4	16.5
LnGrp LOS	F	D	C	C	C	C	E	F	A	F	C	B
Approach Vol, veh/h	1110				1424				1737			
Approach Delay, s/veh	84.0				24.8				148.3			
Approach LOS	F				C				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	46.4	39.6	18.1	64.4	12.0	74.0	14.5	68.0				
Change Period (Y+Rc), s	5.0	* 5	4.4	4.9	4.4	5.0	4.9	* 4.9				
Max Green Setting (Gmax), s	4.0	* 35	18.9	53.8	7.6	31.0	9.6	* 63				
Max Q Clear Time (g_c+I1), s	9.7	20.5	13.4	26.7	9.6	22.0	11.6	65.1				
Green Ext Time (p_c), s	0.0	4.4	0.3	1.8	0.0	4.7	0.0	0.0				

Intersection Summary

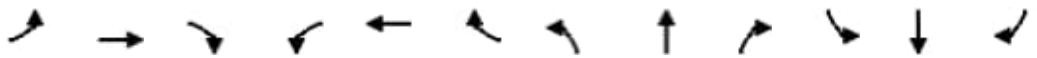
HCM 7th Control Delay, s/veh 89.3
HCM 7th LOS F

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
16: Genesee Ave. & Derrick Dr.

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	90	70	150	200	50	120	170	1080	280	160	800	90
Future Volume (veh/h)	90	70	150	200	50	120	170	1080	280	160	800	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	95	74	137	211	53	103	179	1137	230	167	833	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	83	71	82	304	60	668	150	1852	826	149	1837	800
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.17	1.00	1.00	0.08	0.52	0.52
Sat Flow, veh/h	72	168	195	547	142	1578	1781	3554	1585	1767	3526	1535
Grp Volume(v), veh/h	306	0	0	264	0	103	179	1137	230	167	833	65
Grp Sat Flow(s),veh/h/ln	435	0	0	689	0	1578	1781	1777	1585	1767	1763	1535
Q Serve(g_s), s	5.9	0.0	0.0	0.0	0.0	3.6	7.6	0.0	0.0	7.6	13.3	1.9
Cycle Q Clear(g_c), s	38.1	0.0	0.0	32.2	0.0	3.6	7.6	0.0	0.0	7.6	13.3	1.9
Prop In Lane	0.31		0.45	0.80		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	236	0	0	364	0	668	150	1852	826	149	1837	800
V/C Ratio(X)	1.29	0.00	0.00	0.73	0.00	0.15	1.19	0.61	0.28	1.12	0.45	0.08
Avail Cap(c_a), veh/h	236	0	0	364	0	668	150	1852	826	149	1837	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.32	0.32	0.32	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	24.2	0.0	16.0	37.4	0.0	0.0	41.2	13.5	10.8
Incr Delay (d2), s/veh	160.2	0.0	0.0	6.2	0.0	0.0	105.0	0.5	0.3	109.2	0.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	0.0	0.0	5.5	0.0	1.3	7.3	0.1	0.1	7.7	4.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	191.1	0.0	0.0	30.4	0.0	16.0	142.4	0.5	0.3	150.4	14.3	11.0
LnGrp LOS	F			C		B	F	A	A	F	B	B
Approach Vol, veh/h		306			367			1546			1065	
Approach Delay, s/veh		191.1			26.3			16.9			35.5	
Approach LOS		F			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	53.2		43.0	12.0	53.2		43.0				
Change Period (Y+Rc), s	4.4	* 5.6		4.9	4.4	5.6		4.9				
Max Green Setting (Gmax), s	7.6	* 30		38.1	7.6	29.4		38.1				
Max Q Clear Time (g_c+I1), s	9.6	2.0		40.1	9.6	15.3		34.2				
Green Ext Time (p_c), s	0.0	24.7		0.0	0.0	8.9		0.5				
Intersection Summary												
HCM 7th Control Delay, s/veh			40.2									
HCM 7th LOS			D									
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	100	200	240	80	190	280	1220	290	280	680	200
Future Volume (veh/h)	110	100	200	240	80	190	280	1220	290	280	680	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	116	105	190	253	84	175	295	1284	267	295	716	165
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	2	2	2
Cap, veh/h	381	229	414	353	205	428	322	1198	532	210	978	435
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.18	0.34	0.34	0.24	0.55	0.55
Sat Flow, veh/h	1117	594	1075	1081	534	1112	1767	3526	1566	1781	3554	1579
Grp Volume(v), veh/h	116	0	295	253	0	259	295	1284	267	295	716	165
Grp Sat Flow(s),veh/h/ln	1117	0	1670	1081	0	1646	1767	1763	1566	1781	1777	1579
Q Serve(g_s), s	7.6	0.0	11.9	20.6	0.0	10.3	14.7	30.6	12.2	10.6	13.7	5.3
Cycle Q Clear(g_c), s	18.0	0.0	11.9	32.4	0.0	10.3	14.7	30.6	12.2	10.6	13.7	5.3
Prop In Lane	1.00		0.64	1.00		0.68	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	0	642	353	0	633	322	1198	532	210	978	435
V/C Ratio(X)	0.30	0.00	0.46	0.72	0.00	0.41	0.92	1.07	0.50	1.41	0.73	0.38
Avail Cap(c_a), veh/h	386	0	649	358	0	640	322	1198	532	210	978	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.13	0.13	0.13	0.82	0.82	0.82
Uniform Delay (d), s/veh	26.8	0.0	20.7	32.8	0.0	20.2	36.1	29.7	23.7	34.4	17.7	15.9
Incr Delay (d2), s/veh	0.3	0.0	0.4	6.2	0.0	0.3	5.8	35.1	0.4	204.5	4.0	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.5	5.8	0.0	3.9	6.7	18.0	4.4	15.8	4.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.1	0.0	21.1	39.1	0.0	20.5	41.9	64.8	24.1	238.9	21.7	17.9
LnGrp LOS	C		C	D		C	D	F	C	F	C	B
Approach Vol, veh/h	411			512			1846			1176		
Approach Delay, s/veh	22.8			29.7			55.3			75.7		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	35.5		39.5	20.8	29.7		39.5				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	10.6	30.2		35.0	16.4	24.4		35.0				
Max Q Clear Time (g_c+l1), s	12.6	32.6		20.0	16.7	15.7		34.4				
Green Ext Time (p_c), s	0.0	0.0		1.7	0.0	4.0		0.2				
Intersection Summary												
HCM 7th Control Delay, s/veh	54.6											
HCM 7th LOS	D											

HCM 7th Signalized Intersection Summary 18: Genesee Ave. & Balboa Ave.

Proposed Plan under Blueprint SD Conditions AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	430	1200	250	200	1130	430	290	800	250	280	600	320
Future Volume (veh/h)	430	1200	250	200	1130	430	290	800	250	280	600	320
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1856	1856	1856
Adj Flow Rate, veh/h	453	1263	230	208	1177	403	305	842	202	295	632	270
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	3	3	3
Cap, veh/h	361	1638	726	808	2555	793	350	894	399	265	832	368
Arrive On Green	0.20	0.46	0.46	0.23	0.50	0.50	0.03	0.09	0.09	0.08	0.24	0.24
Sat Flow, veh/h	1767	3526	1562	3456	5106	1585	3346	3441	1535	3428	3526	1558
Grp Volume(v), veh/h	453	1263	230	208	1177	403	305	842	202	295	632	270
Grp Sat Flow(s),veh/h/ln	1767	1763	1562	1728	1702	1585	1673	1721	1535	1714	1763	1558
Q Serve(g_s), s	30.6	44.8	13.9	7.4	22.4	26.9	13.6	36.5	18.9	11.6	25.0	24.0
Cycle Q Clear(g_c), s	30.6	44.8	13.9	7.4	22.4	26.9	13.6	36.5	18.9	11.6	25.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	361	1638	726	808	2555	793	350	894	399	265	832	368
V/C Ratio(X)	1.26	0.77	0.32	0.26	0.46	0.51	0.87	0.94	0.51	1.11	0.76	0.73
Avail Cap(c_a), veh/h	361	1638	726	808	2555	793	366	897	400	265	832	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.54	0.54	0.54	0.64	0.64	0.64
Uniform Delay (d), s/veh	59.7	33.5	25.5	46.9	24.3	27.8	71.4	67.4	59.4	69.2	53.3	53.0
Incr Delay (d2), s/veh	136.2	3.6	1.1	0.1	0.6	2.3	11.1	11.4	1.0	78.4	3.0	5.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	19.2	5.4	3.1	8.9	10.7	6.7	18.4	7.9	8.0	11.4	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	195.9	37.1	26.6	46.9	24.9	30.1	82.5	78.8	60.4	147.6	56.3	58.5
LnGrp LOS	F	D	C	D	C	C	F	E	E	F	E	E
Approach Vol, veh/h	1946			1788			1349			1197		
Approach Delay, s/veh	72.8			28.7			76.9			79.3		
Approach LOS	E			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.8	75.0	20.1	40.3	35.0	80.8	16.5	43.9				
Change Period (Y+Rc), s	5.4	* 5.3	4.4	4.9	4.4	5.4	4.9	* 4.9				
Max Green Setting (Gmax), s	10.6	* 70	16.4	34.3	30.6	49.6	11.6	* 39				
Max Q Clear Time (g_c+I1), s	9.4	46.8	15.6	27.0	32.6	28.9	13.6	38.5				
Green Ext Time (p_c), s	0.0	11.3	0.1	4.1	0.0	9.2	0.0	0.5				

Intersection Summary

HCM 7th Control Delay, s/veh	62.4
HCM 7th LOS	E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	180	130	230	270	160	110	1050	200	160	700	120
Future Volume (veh/h)	130	180	130	230	270	160	110	1050	200	160	700	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	137	189	120	242	284	124	116	1105	182	168	737	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	6	6	6
Cap, veh/h	160	204	130	265	472	389	138	1140	496	331	1552	686
Arrive On Green	0.09	0.19	0.19	0.15	0.25	0.25	0.08	0.33	0.33	0.19	0.45	0.45
Sat Flow, veh/h	1781	1058	672	1781	1870	1542	1725	3441	1498	1725	3441	1522
Grp Volume(v), veh/h	137	0	309	242	284	124	116	1105	182	168	737	94
Grp Sat Flow(s),veh/h/ln	1781	0	1729	1781	1870	1542	1725	1721	1498	1725	1721	1522
Q Serve(g_s), s	11.4	0.0	26.3	20.1	20.1	6.4	10.0	47.4	13.9	13.1	22.4	5.4
Cycle Q Clear(g_c), s	11.4	0.0	26.3	20.1	20.1	6.4	10.0	47.4	13.9	13.1	22.4	5.4
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	0	334	265	472	389	138	1140	496	331	1552	686
V/C Ratio(X)	0.86	0.00	0.92	0.91	0.60	0.32	0.84	0.97	0.37	0.51	0.47	0.14
Avail Cap(c_a), veh/h	368	0	357	368	472	389	293	1140	496	331	1552	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.66	0.66
Uniform Delay (d), s/veh	67.3	0.0	59.4	62.9	49.5	19.6	68.1	49.4	38.2	54.3	28.8	24.1
Incr Delay (d2), s/veh	5.0	0.0	27.4	18.1	1.5	0.2	5.3	20.2	2.1	0.3	0.7	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	14.1	10.5	9.7	2.4	4.5	23.0	5.5	5.7	9.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.3	0.0	86.9	81.0	51.0	19.8	73.4	69.6	40.3	54.6	29.5	24.4
LnGrp LOS	E		F	F	D	B	E	E	D	D	C	C
Approach Vol, veh/h	446			650			1403			999		
Approach Delay, s/veh	82.4			56.2			66.1			33.2		
Approach LOS	F			E			E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.7	55.2	27.2	33.9	16.4	72.5	18.4	42.7				
Change Period (Y+Rc), s	4.9	* 5.5	4.9	4.9	4.4	4.9	4.9	4.9				
Max Green Setting (Gmax), s	18.6	* 50	31.0	31.0	25.5	43.4	31.0	31.0				
Max Q Clear Time (g_c+l1), s	15.1	49.4	22.1	28.3	12.0	24.4	13.4	22.1				
Green Ext Time (p_c), s	0.1	0.2	0.2	0.3	0.1	13.3	0.2	0.9				

Intersection Summary

HCM 7th Control Delay, s/veh	56.9
HCM 7th LOS	E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 27: Clairemont Dr. & Balboa Ave.

Proposed Plan under Blueprint SD Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Traffic Volume (veh/h)	310	960	300	550	940	220	300	500	520	270	410	430
Future Volume (veh/h)	310	960	300	550	940	220	300	500	520	270	410	430
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	326	1011	253	579	989	179	316	526	547	284	432	362
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	2	2	2
Cap, veh/h	433	983	419	619	1127	487	337	949	695	245	770	535
Arrive On Green	0.13	0.28	0.28	0.18	0.32	0.32	0.19	0.27	0.27	0.14	0.22	0.22
Sat Flow, veh/h	3428	3526	1504	3428	3526	1523	1753	3497	1524	1781	3554	1546
Grp Volume(v), veh/h	326	1011	253	579	989	179	316	526	547	284	432	362
Grp Sat Flow(s),veh/h/ln	1714	1763	1504	1714	1763	1523	1753	1749	1524	1781	1777	1546
Q Serve(g_s), s	13.8	41.8	21.9	25.0	39.8	9.4	26.7	19.3	40.7	20.6	16.3	10.2
Cycle Q Clear(g_c), s	13.8	41.8	21.9	25.0	39.8	9.4	26.7	19.3	40.7	20.6	16.3	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	983	419	619	1127	487	337	949	695	245	770	535
V/C Ratio(X)	0.75	1.03	0.60	0.94	0.88	0.37	0.94	0.55	0.79	1.16	0.56	0.68
Avail Cap(c_a), veh/h	433	983	419	631	1330	575	366	949	695	245	770	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	54.1	46.9	60.6	48.2	18.9	59.7	46.9	35.1	64.7	52.4	17.6
Incr Delay (d2), s/veh	6.5	36.3	6.3	20.8	9.7	2.1	29.6	0.6	5.7	108.0	0.8	3.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	23.0	8.9	12.4	18.6	3.6	14.6	8.5	17.9	16.6	7.3	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.8	90.4	53.2	81.4	58.0	21.0	89.4	47.4	40.9	172.7	53.2	20.8
LnGrp LOS	E	F	D	F	E	C	F	D	D	F	D	C
Approach Vol, veh/h	1590			1747			1389			1078		
Approach Delay, s/veh	80.2			61.9			54.4			73.8		
Approach LOS	F			E			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.5	47.5	33.2	37.8	24.6	54.4	25.0	46.0				
Change Period (Y+Rc), s	4.4	5.7	4.4	5.3	5.7	* 6.4	4.4	5.3				
Max Green Setting (Gmax), s	27.6	41.3	31.3	30.0	11.6	* 57	20.6	40.7				
Max Q Clear Time (g_c+I1), s	27.0	43.8	28.7	18.3	15.8	41.8	22.6	42.7				
Green Ext Time (p_c), s	0.1	0.0	0.1	2.8	0.0	6.2	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 67.4
HCM 7th LOS E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr.

Proposed Plan under Blueprint SD Conditions AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	730	230	150	1170	60	250	70	110	110	70	310
Future Volume (veh/h)	150	730	230	150	1170	60	250	70	110	110	70	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1826	1826	1826	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	768	194	156	1219	36	263	74	99	116	74	293
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	2	2	2
Cap, veh/h	136	1718	765	177	1775	52	272	226	302	138	76	303
Arrive On Green	0.08	0.49	0.49	0.10	0.52	0.52	0.15	0.31	0.31	0.08	0.23	0.23
Sat Flow, veh/h	1753	3497	1557	1739	3441	102	1781	723	968	1781	328	1297
Grp Volume(v), veh/h	158	768	194	156	614	641	263	0	173	116	0	367
Grp Sat Flow(s),veh/h/ln	1753	1749	1557	1739	1735	1808	1781	0	1691	1781	0	1625
Q Serve(g_s), s	11.6	21.5	8.5	13.3	39.8	39.9	22.0	0.0	11.8	9.6	0.0	33.6
Cycle Q Clear(g_c), s	11.6	21.5	8.5	13.3	39.8	39.9	22.0	0.0	11.8	9.6	0.0	33.6
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.57	1.00		0.80
Lane Grp Cap(c), veh/h	136	1718	765	177	895	933	272	0	527	138	0	379
V/C Ratio(X)	1.17	0.45	0.25	0.88	0.69	0.69	0.97	0.00	0.33	0.84	0.00	0.97
Avail Cap(c_a), veh/h	136	1718	765	204	895	933	272	0	527	213	0	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.2	24.9	13.5	66.4	27.2	27.2	63.2	0.0	39.6	68.3	0.0	56.9
Incr Delay (d2), s/veh	128.6	0.8	0.8	27.8	4.3	4.1	45.1	0.0	0.1	10.0	0.0	37.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	9.1	3.2	7.2	17.3	18.0	13.4	0.0	5.0	4.8	0.0	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	197.8	25.7	14.3	94.2	31.5	31.3	108.3	0.0	39.7	78.2	0.0	94.4
LnGrp LOS	F	C	B	F	C	C	F		D	E		F
Approach Vol, veh/h	1120			1411			436			483		
Approach Delay, s/veh	48.0			38.3			81.1			90.5		
Approach LOS	D			D			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.7	80.1	27.8	39.9	16.0	83.8	16.0	51.7				
Change Period (Y+Rc), s	4.4	* 5.9	4.9	* 4.9	4.4	5.9	4.4	4.9				
Max Green Setting (Gmax), s	17.6	* 56	22.9	* 35	11.6	60.9	17.9	40.0				
Max Q Clear Time (g_c+I1), s	15.3	23.5	24.0	35.6	13.6	41.9	11.6	13.8				
Green Ext Time (p_c), s	0.0	10.8	0.0	0.0	0.0	10.7	0.1	0.7				

Intersection Summary

HCM 7th Control Delay, s/veh	54.2
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1200	500	500	650	100	180	60	330	100	40	30
Future Volume (veh/h)	60	1200	500	500	650	100	180	60	330	100	40	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	63	1263	425	526	684	84	189	63	314	105	42	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	4	4	4	2	2	2
Cap, veh/h	80	1648	717	538	2608	1156	194	55	270	201	79	48
Arrive On Green	0.05	0.47	0.47	0.10	0.24	0.24	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1753	3497	1521	1781	3554	1575	496	167	826	497	241	146
Grp Volume(v), veh/h	63	1263	425	526	684	84	566	0	0	176	0	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1521	1781	1777	1575	1488	0	0	883	0	0
Q Serve(g_s), s	5.3	44.8	30.7	44.2	23.4	6.2	24.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	44.8	30.7	44.2	23.4	6.2	49.1	0.0	0.0	24.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.33		0.55	0.60		0.16
Lane Grp Cap(c), veh/h	80	1648	717	538	2608	1156	519	0	0	328	0	0
V/C Ratio(X)	0.79	0.77	0.59	0.98	0.26	0.07	1.09	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	141	1648	717	538	2608	1156	519	0	0	328	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.46	0.46	0.46	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	70.9	32.8	29.1	67.0	24.0	17.5	51.8	0.0	0.0	41.5	0.0	0.0
Incr Delay (d2), s/veh	6.4	3.5	3.6	21.0	0.1	0.1	66.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	19.5	11.9	24.4	11.2	2.3	29.6	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.3	36.3	32.7	88.0	24.1	17.5	118.1	0.0	0.0	42.5	0.0	0.0
LnGrp LOS	E	D	C	F	C	B	F			D		
Approach Vol, veh/h	1751			1294			566			176		
Approach Delay, s/veh	36.9			49.6			118.1			42.5		
Approach LOS	D			D			F			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.5	76.0		54.0	11.2	116.3		54.0				
Change Period (Y+Rc), s	5.3	* 5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	15.6	* 71		49.1	12.1	74.2		49.1				
Max Q Clear Time (g_c+I1), s	46.2	46.8		26.2	7.3	25.4		51.1				
Green Ext Time (p_c), s	0.0	17.7		0.8	0.0	10.4		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 53.6
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 9: Clairemont Dr & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	750	450	550	600	220	290	550	400	190	500	300
Future Volume (veh/h)	400	750	450	550	600	220	290	550	400	190	500	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1823	1823	1870	1770	1770	1870	1870	1823	1856	1856	1778
Adj Flow Rate, veh/h	421	789	422	579	632	199	302	573	330	200	526	247
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	475	913	485	1239	1630	513	257	570	1012	160	477	580
Arrive On Green	0.14	0.43	0.43	0.36	0.65	0.65	0.14	0.30	0.30	0.09	0.26	0.26
Sat Flow, veh/h	3456	2148	1141	3456	2501	787	1781	1870	1502	1767	1856	1450
Grp Volume(v), veh/h	421	635	576	579	425	406	302	573	330	200	526	247
Grp Sat Flow(s),veh/h/ln	1728	1732	1556	1728	1681	1606	1781	1870	1502	1767	1856	1450
Q Serve(g_s), s	17.9	49.9	50.6	19.4	17.6	17.7	21.6	45.7	0.0	13.6	38.6	18.6
Cycle Q Clear(g_c), s	17.9	49.9	50.6	19.4	17.6	17.7	21.6	45.7	0.0	13.6	38.6	18.6
Prop In Lane	1.00		0.73	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	475	737	662	1239	1096	1047	257	570	1012	160	477	580
V/C Ratio(X)	0.89	0.86	0.87	0.47	0.39	0.39	1.18	1.01	0.33	1.25	1.10	0.43
Avail Cap(c_a), veh/h	751	737	662	1239	1096	1047	257	570	1012	160	477	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.5	39.1	39.3	37.1	12.2	12.2	64.2	52.2	10.8	68.2	55.7	33.1
Incr Delay (d2), s/veh	2.9	7.4	8.6	0.1	1.0	1.1	112.8	39.1	0.2	153.0	71.8	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	22.4	20.6	8.2	6.8	6.5	17.8	27.4	4.7	12.9	27.4	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	46.5	47.9	37.2	13.2	13.3	177.0	91.2	11.0	221.2	127.5	33.7
LnGrp LOS	E	D	D	D	B	B	F	F	B	F	F	C
Approach Vol, veh/h	1632			1410			1205			973		
Approach Delay, s/veh	52.1			23.1			90.8			122.9		
Approach LOS	D			C			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	60.3	69.0	26.0	43.7	25.0	104.3	18.7	51.0				
Change Period (Y+Rc), s	5.1	* 5.2	4.4	5.1	4.4	5.1	5.1	* 5.3				
Max Green Setting (Gmax), s	7.6	* 64	21.6	37.9	32.6	38.9	13.6	* 46				
Max Q Clear Time (g_c+I1), s	21.4	52.6	23.6	40.6	19.9	19.7	15.6	47.7				
Green Ext Time (p_c), s	0.0	6.6	0.0	0.0	0.7	6.1	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 66.4
HCM 7th LOS E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

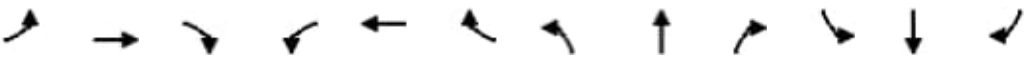
HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	840	470	480	1000	250	420	580	250	250	1000	210
Future Volume (veh/h)	260	840	470	480	1000	250	420	580	250	250	1000	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1754	1796	1796	1711	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	268	866	386	500	1042	202	433	598	196	263	1053	177
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	7	7	7	3	3	3	5	5	5
Cap, veh/h	195	816	461	345	956	633	288	695	745	284	829	785
Arrive On Green	0.06	0.23	0.23	0.10	0.28	0.28	0.08	0.37	0.37	0.16	0.45	0.45
Sat Flow, veh/h	3401	3497	1440	3319	3413	1415	3428	1856	1552	1739	1826	1534
Grp Volume(v), veh/h	268	866	386	500	1042	202	433	598	196	263	1053	177
Grp Sat Flow(s),veh/h/ln	1700	1749	1440	1659	1706	1415	1714	1856	1552	1739	1826	1534
Q Serve(g_s), s	8.6	35.0	35.0	15.6	42.0	13.9	12.6	44.6	11.3	22.4	68.1	9.6
Cycle Q Clear(g_c), s	8.6	35.0	35.0	15.6	42.0	13.9	12.6	44.6	11.3	22.4	68.1	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	816	461	345	956	633	288	695	745	284	829	785
V/C Ratio(X)	1.37	1.06	0.84	1.45	1.09	0.32	1.50	0.86	0.26	0.93	1.27	0.23
Avail Cap(c_a), veh/h	195	816	461	345	956	633	288	695	745	332	829	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.7	57.5	47.7	67.2	54.0	27.1	68.7	43.3	23.3	61.8	40.9	20.2
Incr Delay (d2), s/veh	197.4	49.0	16.4	217.5	56.9	1.3	243.9	10.2	0.1	27.0	131.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	20.9	15.3	17.0	25.4	4.9	15.2	22.0	4.1	11.8	59.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	268.1	106.5	64.2	284.7	110.9	28.4	312.6	53.5	23.4	88.8	172.0	20.3
LnGrp LOS	F	F	E	F	F	C	F	D	C	F	F	C
Approach Vol, veh/h	1520			1744			1227			1493		
Approach Delay, s/veh	124.3			151.2			140.1			139.4		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	40.0	17.0	73.0	13.0	47.0	28.9	61.1				
Change Period (Y+Rc), s	4.4	5.0	4.4	4.9	4.4	5.0	4.4	4.9				
Max Green Setting (Gmax), s	15.6	35.0	12.6	68.1	8.6	42.0	28.6	52.1				
Max Q Clear Time (g_c+I1), s	17.6	37.0	14.6	70.1	10.6	44.0	24.4	46.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5				
Intersection Summary												
HCM 7th Control Delay, s/veh	139.1											
HCM 7th LOS	F											

HCM 7th Signalized Intersection Summary 16: Genesee Ave. & Derrick Dr.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	100	80	120	300	60	150	100	1190	380	210	1300	80
Future Volume (veh/h)	100	80	120	300	60	150	100	1190	380	210	1300	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1730	1730	1730	1870	1870	1716	1870	1870	1800	1856	1856	1814
Adj Flow Rate, veh/h	105	84	112	316	63	129	105	1253	305	221	1368	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	51	39	23	261	38	434	86	2327	994	234	2605	1106
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.44	0.44	0.13	0.74	0.74
Sat Flow, veh/h	0	127	75	625	125	1416	1781	3554	1519	1767	3526	1496
Grp Volume(v), veh/h	301	0	0	379	0	129	105	1253	305	221	1368	63
Grp Sat Flow(s),veh/h/ln	203	0	0	749	0	1416	1781	1777	1519	1767	1763	1496
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.6	4.6	24.6	12.4	11.8	15.7	1.1
Cycle Q Clear(g_c), s	29.1	0.0	0.0	29.1	0.0	6.6	4.6	24.6	12.4	11.8	15.7	1.1
Prop In Lane	0.35		0.37	0.83		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	113	0	0	299	0	434	86	2327	994	234	2605	1106
V/C Ratio(X)	2.66	0.00	0.00	1.27	0.00	0.30	1.22	0.54	0.31	0.94	0.53	0.06
Avail Cap(c_a), veh/h	113	0	0	299	0	434	86	2327	994	234	2605	1106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	0.0	36.3	0.0	25.1	46.0	16.1	12.7	40.8	5.3	3.4
Incr Delay (d2), s/veh	771.0	0.0	0.0	144.1	0.0	0.1	107.4	0.1	0.1	42.7	0.8	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.9	0.0	0.0	19.0	0.0	2.2	4.6	10.5	4.5	7.7	4.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	803.6	0.0	0.0	180.5	0.0	25.3	153.4	16.2	12.8	83.5	6.1	3.5
LnGrp LOS	F			F		C	F	B	B	F	A	A
Approach Vol, veh/h	301			508			1663			1652		
Approach Delay, s/veh	803.6			141.1			24.2			16.3		
Approach LOS	F			F			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	68.5		34.0	9.0	76.5		34.0				
Change Period (Y+Rc), s	4.4	* 5.6		4.9	4.4	5.6		4.9				
Max Green Setting (Gmax), s	12.6	* 39		29.1	4.6	46.4		29.1				
Max Q Clear Time (g_c+I1), s	13.8	26.6		31.1	6.6	17.7		31.1				
Green Ext Time (p_c), s	0.0	11.9		0.0	0.0	22.4		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 92.3
HCM 7th LOS F

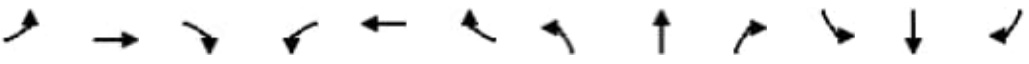
Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	120	150	230	120	290	270	1290	250	330	1250	170
Future Volume (veh/h)	130	120	150	230	120	290	270	1290	250	330	1250	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1786	1870	1870	1786
Adj Flow Rate, veh/h	137	126	114	242	126	273	284	1358	202	347	1316	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	2	2	2
Cap, veh/h	228	323	292	364	187	406	197	1191	506	536	1892	802
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.11	0.34	0.34	0.60	1.00	1.00
Sat Flow, veh/h	981	899	814	1132	522	1130	1767	3526	1498	1781	3554	1506
Grp Volume(v), veh/h	137	0	240	242	0	399	284	1358	202	347	1316	135
Grp Sat Flow(s),veh/h/ln	981	0	1713	1132	0	1652	1767	1763	1498	1781	1777	1506
Q Serve(g_s), s	13.0	0.0	9.9	19.2	0.0	19.4	10.6	32.1	9.8	12.1	0.0	0.0
Cycle Q Clear(g_c), s	32.4	0.0	9.9	29.2	0.0	19.4	10.6	32.1	9.8	12.1	0.0	0.0
Prop In Lane	1.00		0.47	1.00		0.68	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	0	615	364	0	593	197	1191	506	536	1892	802
V/C Ratio(X)	0.60	0.00	0.39	0.66	0.00	0.67	1.44	1.14	0.40	0.65	0.70	0.17
Avail Cap(c_a), veh/h	228	0	615	364	0	593	197	1191	506	536	1892	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.50	0.50	0.50
Uniform Delay (d), s/veh	39.4	0.0	22.7	33.6	0.0	25.7	42.2	31.5	24.1	15.6	0.0	0.0
Incr Delay (d2), s/veh	3.9	0.0	0.3	4.2	0.0	2.8	200.8	64.1	0.2	1.1	1.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	4.0	5.6	0.0	7.8	15.5	23.5	3.4	3.6	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.3	0.0	23.0	37.7	0.0	28.5	243.0	95.5	24.3	16.7	1.1	0.2
LnGrp LOS	D		C	D		C	F	F	C	B	A	A
Approach Vol, veh/h	377			641			1844			1798		
Approach Delay, s/veh	30.4			32.0			110.4			4.0		
Approach LOS	C			C			F			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	37.0		39.0	15.0	55.5		39.0				
Change Period (Y+Rc), s	4.9	* 4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	14.6	* 32		34.1	10.6	36.1		34.1				
Max Q Clear Time (g_c+I1), s	14.1	34.1		34.4	12.6	2.0		31.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	15.7		0.9				

Intersection Summary

HCM 7th Control Delay, s/veh 52.1
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
18: Genesee Ave. & Balboa Ave.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	1150	300	300	1260	480	350	820	340	400	950	330
Future Volume (veh/h)	470	1150	300	300	1260	480	350	820	340	400	950	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1780	1780	1870	1775	1775	1811	1811	1728	1856	1856	1761
Adj Flow Rate, veh/h	485	1186	278	316	1326	451	368	863	286	421	1000	278
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	3	3	3
Cap, veh/h	631	2518	1119	369	2359	731	337	797	339	392	853	353
Arrive On Green	0.36	0.74	0.74	0.11	0.49	0.49	0.10	0.23	0.23	0.11	0.24	0.24
Sat Flow, veh/h	1767	3383	1504	3456	4845	1500	3346	3441	1465	3428	3526	1460
Grp Volume(v), veh/h	485	1186	278	316	1326	451	368	863	286	421	1000	278
Grp Sat Flow(s),veh/h/ln	1767	1691	1504	1728	1615	1500	1673	1721	1465	1714	1763	1460
Q Serve(g_s), s	35.3	20.0	13.6	13.0	28.0	41.1	14.6	33.6	27.0	16.6	35.1	25.8
Cycle Q Clear(g_c), s	35.3	20.0	13.6	13.0	28.0	41.1	14.6	33.6	27.0	16.6	35.1	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	631	2518	1119	369	2359	731	337	797	339	392	853	353
V/C Ratio(X)	0.77	0.47	0.25	0.86	0.56	0.62	1.09	1.08	0.84	1.07	1.17	0.79
Avail Cap(c_a), veh/h	631	2518	1119	610	2359	731	337	797	339	392	853	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.17	0.17	0.17	0.35	0.35	0.35
Uniform Delay (d), s/veh	41.3	7.3	15.2	63.7	26.3	45.1	65.2	55.7	53.2	64.2	54.9	51.4
Incr Delay (d2), s/veh	5.2	0.6	0.5	3.2	1.0	3.9	50.4	41.5	3.7	48.6	82.0	4.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	6.4	4.8	5.8	10.6	15.9	8.6	19.0	10.2	9.9	25.2	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.4	7.9	15.7	66.8	27.3	48.9	115.6	97.2	56.9	112.8	137.0	56.0
LnGrp LOS	D	A	B	E	C	D	F	F	E	F	F	E
Approach Vol, veh/h	1949			2093			1517			1699		
Approach Delay, s/veh	18.6			37.9			94.1			117.8		
Approach LOS	B			D			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.9	114.6	19.5	40.0	58.5	76.0	21.0	38.5				
Change Period (Y+Rc), s	4.4	5.3	4.9	* 4.9	5.3	* 5.4	4.4	4.9				
Max Green Setting (Gmax), s	25.6	50.7	14.6	* 35	5.6	* 71	16.6	33.1				
Max Q Clear Time (g_c+I1), s	15.0	22.0	16.6	37.1	37.3	43.1	18.6	35.6				
Green Ext Time (p_c), s	0.4	12.0	0.0	0.0	0.0	12.1	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh	63.2
HCM 7th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	260	150	340	380	150	280	1280	270	140	1050	250
Future Volume (veh/h)	250	260	150	340	380	150	280	1280	270	140	1050	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1804	1804	1870	1870	1766	1811	1811	1775	1811	1811	1756
Adj Flow Rate, veh/h	263	274	140	354	396	125	295	1347	227	147	1105	189
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	6	6	6
Cap, veh/h	375	254	130	368	418	329	260	1253	530	312	1381	594
Arrive On Green	0.21	0.23	0.23	0.21	0.22	0.22	0.15	0.36	0.36	0.18	0.40	0.40
Sat Flow, veh/h	1781	1116	570	1781	1870	1474	1725	3441	1455	1725	3441	1480
Grp Volume(v), veh/h	263	0	414	354	396	125	295	1347	227	147	1105	189
Grp Sat Flow(s),veh/h/ln	1781	0	1686	1781	1870	1474	1725	1721	1455	1725	1721	1480
Q Serve(g_s), s	20.5	0.0	34.1	29.5	31.3	10.8	22.6	54.6	13.1	11.5	42.5	9.6
Cycle Q Clear(g_c), s	20.5	0.0	34.1	29.5	31.3	10.8	22.6	54.6	13.1	11.5	42.5	9.6
Prop In Lane	1.00		0.34	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	0	383	368	418	329	260	1253	530	312	1381	594
V/C Ratio(X)	0.70	0.00	1.08	0.96	0.95	0.38	1.14	1.08	0.43	0.47	0.80	0.32
Avail Cap(c_a), veh/h	375	0	383	368	425	335	260	1253	530	312	1381	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.19	0.19	0.19
Uniform Delay (d), s/veh	54.8	0.0	58.0	58.9	57.4	49.4	63.7	47.7	19.9	55.0	39.6	16.3
Incr Delay (d2), s/veh	4.9	0.0	69.0	36.5	30.1	0.3	97.2	48.3	2.5	0.1	1.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	0.0	21.9	17.1	18.3	4.0	16.7	31.0	4.9	5.0	17.9	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.7	0.0	127.0	95.4	87.6	49.7	160.9	96.0	22.4	55.1	40.6	16.6
LnGrp LOS	E		F	F	F	D	F	F	C	E	D	B
Approach Vol, veh/h	677			875			1869			1441		
Approach Delay, s/veh	100.8			85.3			97.3			38.9		
Approach LOS	F			F			F			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	60.1	35.9	39.0	27.0	65.6	36.5	38.4				
Change Period (Y+Rc), s	4.9	* 5.5	4.9	4.9	4.4	4.9	4.9	4.9				
Max Green Setting (Gmax), s	10.6	* 55	31.0	34.1	22.6	43.2	31.0	34.1				
Max Q Clear Time (g_c+I1), s	13.5	56.6	31.5	36.1	24.6	44.5	22.5	33.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2				
Intersection Summary												
HCM 7th Control Delay, s/veh	78.3											
HCM 7th LOS	E											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 27: Clairemont Dr & Balboa Ave.

Proposed Plan under Blueprint SD Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	520	1260	200	550	1300	280	190	440	500	380	700	380
Future Volume (veh/h)	520	1260	200	550	1300	280	190	440	500	380	700	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1785	1856	1856	1785	1841	1841	1771	1870	1870	1799
Adj Flow Rate, veh/h	542	1312	166	579	1368	234	200	463	417	400	737	320
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	2	2	2
Cap, veh/h	467	1202	508	512	1202	506	234	871	586	231	851	563
Arrive On Green	0.14	0.34	0.34	0.15	0.34	0.34	0.13	0.25	0.25	0.13	0.24	0.24
Sat Flow, veh/h	3428	3526	1490	3428	3526	1484	1753	3497	1452	1781	3554	1485
Grp Volume(v), veh/h	542	1312	166	579	1368	234	200	463	417	400	737	320
Grp Sat Flow(s),veh/h/ln	1714	1763	1490	1714	1763	1484	1753	1749	1452	1781	1777	1485
Q Serve(g_s), s	20.6	51.6	8.6	22.6	51.6	13.0	16.9	17.3	36.7	19.6	30.1	4.6
Cycle Q Clear(g_c), s	20.6	51.6	8.6	22.6	51.6	13.0	16.9	17.3	36.7	19.6	30.1	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	1202	508	512	1202	506	234	871	586	231	851	563
V/C Ratio(X)	1.16	1.09	0.33	1.13	1.14	0.46	0.86	0.53	0.71	1.73	0.87	0.57
Avail Cap(c_a), veh/h	467	1202	508	512	1202	506	234	871	586	231	1026	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	49.9	17.5	64.3	49.9	18.8	64.2	49.2	38.4	65.8	55.2	37.3
Incr Delay (d2), s/veh	94.0	54.5	0.4	80.9	72.6	0.7	24.5	0.5	3.7	347.6	6.6	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.9	31.1	3.0	15.4	34.1	4.6	9.1	7.7	13.6	31.1	14.2	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	159.3	104.4	17.9	145.2	122.4	19.5	88.7	49.6	42.1	413.4	61.8	38.1
LnGrp LOS	F	F	B	F	F	B	F	D	D	F	E	D
Approach Vol, veh/h	2020				2181				1080			
Approach Delay, s/veh	112.0				117.4				54.0			
Approach LOS	F				F				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	57.3	25.5	41.5	26.3	58.0	24.0	43.0				
Change Period (Y+Rc), s	4.4	5.7	5.3	* 5.3	5.7	* 6.4	4.4	5.3				
Max Green Setting (Gmax), s	22.6	50.3	13.6	* 44	20.6	* 52	19.6	37.7				
Max Q Clear Time (g_c+I1), s	24.6	53.6	18.9	32.1	22.6	53.6	21.6	38.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 113.3
HCM 7th LOS F

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr

Proposed Plan under Blueprint SD Conditions PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	1120	340	210	710	110	250	100	210	110	60	190
Future Volume (veh/h)	190	1120	340	210	710	110	250	100	210	110	60	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			Yes		
Adj Sat Flow, veh/h/ln	1841	1841	1804	1826	1789	1789	1870	1836	1836	1723	1686	1686
Adj Flow Rate, veh/h	198	1167	285	216	732	88	263	105	173	116	63	179
Peak Hour Factor	0.96	0.96	0.96	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	2	2	2
Cap, veh/h	224	1270	553	239	1155	139	289	163	268	138	71	201
Arrive On Green	0.13	0.36	0.36	0.14	0.38	0.38	0.16	0.26	0.26	0.08	0.18	0.18
Sat Flow, veh/h	1753	3497	1525	1739	3055	367	1781	620	1021	1641	384	1092
Grp Volume(v), veh/h	198	1167	285	216	407	413	263	0	278	116	0	242
Grp Sat Flow(s),veh/h/ln	1753	1749	1525	1739	1700	1723	1781	0	1641	1641	0	1477
Q Serve(g_s), s	14.7	42.3	12.3	16.2	26.0	26.0	19.3	0.0	20.0	9.3	0.0	21.2
Cycle Q Clear(g_c), s	14.7	42.3	12.3	16.2	26.0	26.0	19.3	0.0	20.0	9.3	0.0	21.2
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.62	1.00		0.74
Lane Grp Cap(c), veh/h	224	1270	553	239	643	651	289	0	430	138	0	272
V/C Ratio(X)	0.88	0.92	0.51	0.90	0.63	0.63	0.91	0.00	0.65	0.84	0.00	0.89
Avail Cap(c_a), veh/h	536	1291	563	257	643	651	437	0	536	237	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.9	40.4	13.3	56.4	33.8	33.8	54.6	0.0	43.5	59.9	0.0	52.9
Incr Delay (d2), s/veh	4.5	10.8	1.2	29.4	2.3	2.3	12.7	0.0	0.9	5.1	0.0	19.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	19.8	4.4	9.0	11.0	11.2	9.7	0.0	8.2	4.1	0.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.4	51.3	14.5	85.8	36.1	36.1	67.3	0.0	44.4	65.0	0.0	72.0
LnGrp LOS	E	D	B	F	D	D	E		D	E		E
Approach Vol, veh/h	1650			1036			541			358		
Approach Delay, s/veh	46.1			46.4			55.5			69.8		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.2	53.3	26.0	29.3	21.4	56.1	15.6	39.7				
Change Period (Y+Rc), s	5.9	* 5.1	4.4	4.9	4.4	5.9	4.4	4.9				
Max Green Setting (Gmax), s	19.6	* 49	32.6	30.0	40.6	27.2	19.2	43.4				
Max Q Clear Time (g_c+I1), s	18.2	44.3	21.3	23.2	16.7	28.0	11.3	22.0				
Green Ext Time (p_c), s	0.0	3.8	0.3	0.5	0.3	0.0	0.1	1.1				

Intersection Summary

HCM 7th Control Delay, s/veh	50.0
HCM 7th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Attachment B - Pedestrian Improvements – Proposed Plan Conditions

DRAFT

FUTURE Pedestrian Improvements																																					
#	Intersection	North Leg								South Leg								East Leg								West Leg											
		Physical Features				Operational Features					Physical Features				Operational Features					Physical Features				Operational Features					Physical Features				Operational Features				
		High Vis X-Walk	Advanced Stop	Raised X-Walk	Bulb Outs	Count Down Sig	LPI	No Turn on Red	Ped Signage	ADA	High Vis X-Walk	Advanced Stop	Raised X-Walk	Bulb Outs	Count Down Sig	LPI	No Turn on Red	Ped Signage	ADA	High Vis X-Walk	Advanced Stop	Raised X-Walk	Bulb Outs	Count Down Sig	LPI	No Turn on Red	Ped Signage	ADA	High Vis X-Walk	Advanced Stop	Raised X-Walk	Bulb Outs	Count Down Sig	LPI	No Turn on Red	Ped Signage	ADA
5	Clairmont Mesa Boulevard and Luna Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
6	Jutland Drive and Luna Avenue	x	x							ADA	x		x						ADA	x		x														x	ADA
8	Clairmont Mesa Boulevard and Moraga Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
9	Clairmont Mesa Boulevard and Clairmont Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
10	Ruthe Road and Clairmont Mesa Boulevard	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
11	Clairmont Drive - Kleefer Avenue and Clairmont Mesa Boulevard	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
12	Genesee Avenue and Clairmont Mesa Boulevard	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
13	Limerick Avenue and Clairmont Mesa Boulevard	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
14	I-805 SB Ramps and Clairmont Mesa Boulevard	x	x						x	ADA									ADA																		
16	Genesee Avenue and Derrick Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
17	Genesee Avenue & Mt. Elm Drive		x			x				ADA			x		x				ADA			x		x						x		x		x			ADA
18	Genesee Avenue and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
19	Genesee Avenue and Mt. Allison Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
20	Mt. Allison Drive and Mt. Abraham Avenue																																				
21	Mt. Abernathy Avenue and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
22	Mt. Abernathy Avenue and Balboa Arms Drive									None	x		x						ADA			x															
23	Cannington Drive and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x				ADA
24	Charger Boulevard and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA											x		x		x			ADA
25	-405 SB Ramps and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA																		
27	Clairmont Drive and Balboa Avenue	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
28	I-5 SB Ramps and Mission Bay Drive	x	x			x	x			None	x		x		x				None			x								x		x		x			None
29	I-5 NB Ramps and Clairmont Drive	x	x			x	x		x	ADA	x		x		x				ADA																		
30	Denver Street and Clairmont Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x					x		x		x		ADA	
31	Burgener Boulevard and Clairmont Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x					x		x		x		ADA	
32	Burgener Boulevard and Field Street	x	x							ADA	x		x		x	x			ADA	x		x		x	x					x		x		x			ADA
33	Clairmont Drive and Itasca Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
34	Morena Boulevard and Nagler Street																																				
35	Morena Boulevard and Ashlan Street	x	x			x				ADA	x		x		x				ADA	x		x		x	x												
36	Morena Boulevard and West Morena Boulevard	x	x			x	x			ADA									ADA																		
37	Knowlton Street and Morena Boulevard	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x					x		x		x		ADA	
38	Tecolote Road and Morena Boulevard	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
39	Genesee Avenue and Maritesta Drive	x	x			x				ADA									ADA			x		x													
43	Linda Vista Road and Mesa College Drive	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x					x		x		x		ADA	
49	Morena Boulevard and Balboa Avenue EB Ramps	x	x			x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA	x		x		x	x			ADA
101	Genesee Avenue & SR-52 EB Ramps	x	x			x				ADA									ADA																		
102	Genesee Avenue & Appleton Street	x	x			x				ADA	x		x		x				ADA	x		x		x													
103	Genesee Avenue & Chateau Drive	x	x			x				ADA									ADA			x		x													
104	Genesee Avenue & Herbert Avenue	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
105	Genesee Avenue & Genesee Court	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
106	Genesee Avenue & Boyd Avenue	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
107	Clairmont Drive & Lakeland Avenue	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
108	Meritmac Avenue & Clairmont Drive	x	x							ADA									ADA																		
109	Clairmont Mesa Boulevard & Frink Avenue	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
110	Clairmont Mesa Boulevard & Darne Avenue	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
111	Clairmont Mesa Boulevard & Longford Street	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
112	Clairmont Mesa Boulevard & Doliva Drive	x	x			x				ADA	x		x		x				ADA	x		x		x						x		x		x			ADA
113	Morena Boulevard & Jutland Drive	x	x							None	x		x						None	x		x															
114	Morena Boulevard & Costello Drive	x	x			x				None	x		x		x				None	x		x		x													
115	Morena Boulevard & Averi Drive	x	x			x				ADA									ADA			x															
116	Morena Boulevard & Balboa WB Off-Ramp									ADA	x		x		x				ADA											x							
117	Morena Boulevard & Gesner Street	x	x			x				None									ADA																		
118	Morena Boulevard & Ingulf Street	x	x			x				None									ADA			x		x													
119	Morena Boulevard & Milton Street		x			x				ADA									ADA			x		x													
120	Moraga Avenue & Balboa Avenue	x	x			x				ADA									ADA			x		x													ADA
121	Mt Everest Boulevard & Balboa Avenue	x	x			x	x			ADA	x		x		x				ADA																		



Attachment C - Mobility Element Existing Conditions
Report for the Clairemont Community Plan
Update

DRAFT

Mobility Existing Conditions Report^{1,2}

Report: [Clairemont CPU Mobility Element - Existing Conditions Report](#)

Appendices: [Clairemont CPU Mobility Element - Existing Conditions Report Appendices](#)

Note:

¹ The Clairemont CPU Mobility Element - Existing Conditions Report was finalized in June 2017 using the best available mobility data, information, and methodologies at the time. Since then, some existing mobility conditions and assumptions have changed, such as implementation of upgraded bikeways and the Mid-Coast Trolley extension of the UC San Diego Blue Line.

² It is also important to note that some of the methodologies used for the traffic operations analysis have evolved since the 2017 report. As a result, the analysis methods applied in this Mobility Technical Report (MTR) for the Proposed Plan conditions may differ from those used in the earlier report. The MTR's traffic operations analyses reflect the latest methodologies and software tools.

DRAFT

Attachment D - LTS Criteria and Scoring

DRAFT

Bicycle Level of Traffic Stress (LTS) Scoring Criteria

LTS classifies the street network according to the estimated level of stress it causes cyclists, taking into consideration a cyclist's physical separation from vehicular traffic, vehicular traffic speeds along a roadway segment, number of travel lanes, and factors related to intersection approaches with right-turn lanes and unsignalized crossings. LTS scores range from 1 (lowest stress) to 4 (highest stress) and correspond to roadway conditions that different cycling demographics would find suitable for riding on the basis of stress tolerance.

LTS is determined for roadway segments and intersection approaches using a series of look-up tables. Look-up tables for bicycle LTS along roadway segments are categorized as follows:

- Mixed traffic, no bike lanes (Table 1)
- Roadway with bike lane and on-street parking (Table 2)
- Roadway with bike lane and no on-street parking (Table 3)

LTS Scoring Criteria for Roadway Segments

As shown in **Tables 1** through **3**, speed and roadway width (or number of travel lanes) are major factors considered in the LTS score. Bike lane width and the frequency of bike lane obstructions are also considered for developing LTS scores along roadways with bike lanes. Separate scoring methods are used for roadway segments with and without bike lanes. Table 1 shows the LTS segment criteria for cyclists traveling along roadways without a bike lane in mixed traffic. Table 2 shows the LTS segment criteria for cyclists traveling along roadways with bike lanes and an adjacent parking lane. Table 3 shows the LTS segment criteria for cyclists traveling along roadways with bike lanes and without adjacent parking lanes.

Table 1: LTS Criteria for Segment – Mixed Traffic, No Bike Lane

Speed Limit	Street Width		
	2-3 Lanes	4-5 Lanes	6+ Lanes
≤25 mph	LTS 1 ^a or 2 ^a	LTS 3	LTS 4
30 mph	LTS 2 ^a or 3 ^a	LTS 4	LTS 4
≥35 mph	LTS 4	LTS 4	LTS 4

Source: Mekuria et al. (2012)

Note:

^a Use lower value for streets without marked centerlines or classified as residential and with fewer than 3 lanes; use higher value otherwise.

^b Bicycle routes or Class III facilities are treated as “no bicycle facility”.

Table 2: LTS Criteria for Segment – Bike Lane with Adjacent Parking Lane

Level of Stress (LTS)	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width (through lanes per direction)	1	1	2 or more	2 or more
Sum of bike lane and parking lane width (includes marked buffer and paved gutter)	15 ft. or more	14 or 14.5 ft ^a	13.5 ft. or less	13.5 ft. or less
Speed limit or prevailing speed	25 mph or less	30 mph	35 mph	40 mph or more
Bike lane blockage (typically applies in commercial areas)	Rare	Rare	Frequent	Frequent

Source: Mekuria et al. (2012)

Note:

^a If speed limit < 25 mph or Class = residential, then any width is acceptable for LTS 2.

Table 3: LTS Criteria for Segment – Bike Lane without Adjacent Parking Lane

Criteria	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width (through lanes per direction)	1	2, if directions are separated by a raised median	More than 2, or 2 without a separating median	More than 2, or 2 without a separating median
Bike lane width (includes marked buffer and paved gutter)	6 ft. or more	5.5 ft. or less	5.5 ft. or less	5.5 ft. or less
Speed limit or prevailing speed	30 mph or less	30 mph or less	35 mph	40 mph or more
Bike lane blockage (typically applies in commercial areas)	Rare	Rare	Frequent	Frequent

Source: Mekuria et al. (2012)

Table 3 for example would be interpreted as follows, using the weakest link principle: if a roadway segment has one travel lane in each direction and a 6-foot bike lane (LTS 1), but also has a speed limit of 40 mph or more (LTS 4), then the prevailing level of traffic stress score for the segment is LTS 4, the weakest link.

Attachment E - HCM 7 Analysis Methodology and Assumptions

DRAFT

Level of Service (LOS) Definition

Level of Service (LOS) is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. **Table 1** describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

Table 1 - LOS Definitions

LOS	Definition of Operation
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS, the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Roadway Segment LOS Standards and Thresholds

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast average daily traffic (ADT) volumes. **Table 2** displays the City of San Diego Roadway Capacity and LOS standards.

Table 2 - City of San Diego Roadway Segment Daily Capacity and Level of Service Standards

Roadway Functional Classification	Lanes	Level of Service				
		A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	8	35,000	50,000	70,000	75,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Prime Arterial	4	17,500	24,500	35,000	40,000	45,000
Major Arterial	7	22,500	31,500	45,000	50,000	55,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	5	17,500	24,500	35,000	40,000	45,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial	3	11,250	15,750	22,500	26,250	30,000
Major Arterial	2	7,500	10,500	15,000	17,500	20,000
Major Arterial (one-way)	3	12,500	16,500	22,500	25,000	27,500
Major Arterial (one-way)	2	10,000	13,000	17,500	20,000	22,500
Collector (w/ two-way left-turn lane)	4	10,000	14,000	20,000	25,000	30,000
Collector (w/ two-way left-turn lane)	3	7,500	10,500	15,000	18,750	22,500
Collector (w/ two-way left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (w/o two-way left-turn lane)	4	5,000	7,000	10,000	13,000	15,000
Collector (w/o two-way left-turn lane)	3	4,000	5,000	7,500	10,000	11,000
Collector (w/o two-way left-turn lane)	2	2,500	3,500	5,000	6,500	8,000
Collector (w/o two-way left-turn lane) – no fronting property	2	4,000	5,500	7,500	9,000	10,000
Collector (one-way)	3	11,000	14,000	19,000	22,500	26,000
Collector (one-way)	2	7,500	9,500	12,500	15,500	17,500
Collector (one-way)	1	2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2	-	-	2,200	-	-

Source: City of San Diego TSM

The signalized intersection analysis utilized in this study conforms to the operational analysis methodology outlined in the 2022 *Highway Capacity Manual* (HCM 7). This method defines LOS in terms of delay, or more specifically, average control delay per vehicle (seconds/vehicle).

The HCM 7 methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the ideal saturation flow rate at signalized intersections based upon the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared lane movements (e.g., through and right-turn movements sharing the same lane). The computerized analysis of intersection operations was performed utilizing Synchro 12 traffic analysis software by Trafficware.

The following assumptions were utilized in conducting all intersection LOS analyses:

- Each signalized intersection assumed 10 pedestrian crossing signal activations per leg/signal phase per hour.
- A Peak Hour Factor (PHF) of 0.95 was utilized for all study area intersections.
- Signal timings were optimized by adjusting cycle lengths and splits.

Table 3 presents the signalized intersection average control delay per vehicle thresholds and describes the operational characteristics of each LOS category.

Table 3 - Signalized Intersection Level of Service HCM Operational Analysis Method

Average Control Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤10.0	LOS A occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	LOS B occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
20.1 – 35.0	LOS C occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	LOS D occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	LOS E occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	LOS F occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: *Highway Capacity Manual*, Transportation Research Board (2010)

Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop-controlled intersections, were analyzed using the HCM 7 unsignalized intersection analysis methodology, and utilizing the Synchro 12 traffic analysis software. The LOS for an all-way stop-controlled (AWSC) intersection is determined by the computed or measured average control delay of all movements. For side-street stop-controlled (SSSC) intersections, LOS is determined by the computed or measured control delay and is defined for each minor movement. Control delay and LOS for the “worst” movement are reported, as opposed to average intersection LOS and delay. **Table 4** presents the level of service operations thresholds for unsignalized intersections.

Table 4 - Level of Service Criteria for Stop Controlled Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service (LOS)
≤10.0	A
10.1 – 15.0	B
15.1 – 25.0	C
25.1 – 35.0	D
35.1 – 50.0	E
>50.0	F

Source: Highway Capacity Manual, Transportation Research Board (2010)

Attachment F - Peak Hour Intersection LOS
Calculation Worksheets – Clairemont CPU
Proposed Plan Conditions

DRAFT

HCM 7th Signalized Intersection Summary

Proposed Plan Conditions

1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱	↰↱	↰↱			↰↱	↰
Traffic Volume (veh/h)	0	0	0	380	10	250	610	690	0	0	540	380
Future Volume (veh/h)	0	0	0	380	10	250	610	690	0	0	540	380
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1796	1796	0	0	1841	1841
Adj Flow Rate, veh/h				400	11	0	642	726	0	0	568	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	7	7	0	0	4	4
Cap, veh/h				445	12		704	2110	0	0	1238	
Arrive On Green				0.26	0.26	0.00	0.42	1.00	0.00	0.00	0.35	0.00
Sat Flow, veh/h				1736	48	1585	3319	3503	0	0	3589	1560
Grp Volume(v), veh/h				411	0	0	642	726	0	0	568	0
Grp Sat Flow(s),veh/h/ln				1784	0	1585	1659	1706	0	0	1749	1560
Q Serve(g_s), s				20.0	0.0	0.0	16.3	0.0	0.0	0.0	11.3	0.0
Cycle Q Clear(g_c), s				20.0	0.0	0.0	16.3	0.0	0.0	0.0	11.3	0.0
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				457	0		704	2110	0	0	1238	
V/C Ratio(X)				0.90	0.00		0.91	0.34	0.00	0.00	0.46	
Avail Cap(c_a), veh/h				573	0		859	2110	0	0	1238	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.66	0.66	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	25.1	0.0	0.0	0.0	22.4	0.0
Incr Delay (d2), s/veh				13.2	0.0	0.0	7.8	0.3	0.0	0.0	1.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.1	0.0	0.0	5.4	0.1	0.0	0.0	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				45.5	0.0	0.0	32.9	0.3	0.0	0.0	23.7	0.0
LnGrp LOS				D			C	A			C	
Approach Vol, veh/h					411			1368			568	
Approach Delay, s/veh					45.5			15.6			23.7	
Approach LOS					D			B			C	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	23.8	38.0				61.8		28.2				
Change Period (Y+Rc), s	4.7	6.2				* 6.2		5.1				
Max Green Setting (Gmax), s	23.3	21.8				* 52		28.9				
Max Q Clear Time (g_c+I1), s	18.3	13.3				2.0		22.0				
Green Ext Time (p_c), s	0.8	2.4				6.1		1.0				

Intersection Summary

HCM 7th Control Delay, s/veh	22.8
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary 2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	10	360	0	0	0	0	990	920	400	520	0
Future Volume (veh/h)	310	10	360	0	0	0	0	990	920	400	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1796	1796	1796	1796	0
Adj Flow Rate, veh/h	334	0	0				0	1042	0	421	547	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	7	7	7	7	0
Cap, veh/h	376	0					0	1623		504	2864	0
Arrive On Green	0.11	0.00	0.00				0.00	0.48	0.00	0.59	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3503	1522	1711	3503	0
Grp Volume(v), veh/h	334	0	0				0	1042	0	421	547	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1706	1522	1711	1706	0
Q Serve(g_s), s	8.3	0.0	0.0				0.0	20.7	0.0	17.9	0.0	0.0
Cycle Q Clear(g_c), s	8.3	0.0	0.0				0.0	20.7	0.0	17.9	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	376	0					0	1623		504	2864	0
V/C Ratio(X)	0.89	0.00					0.00	0.64		0.84	0.19	0.00
Avail Cap(c_a), veh/h	376	0					0	1623		504	2864	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	39.7	0.0	0.0				0.0	17.8	0.0	16.7	0.0	0.0
Incr Delay (d2), s/veh	21.9	0.0	0.0				0.0	2.0	0.0	10.0	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0				0.0	8.1	0.0	5.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.6	0.0	0.0				0.0	19.8	0.0	26.8	0.1	0.0
LnGrp LOS	E							B		C	A	
Approach Vol, veh/h	334						1042			968		
Approach Delay, s/veh	61.6						19.8			11.7		
Approach LOS	E						B			B		
Timer - Assigned Phs	2			4		5	6					
Phs Duration (G+Y+Rc), s	81.7			14.6		32.7	49.0					
Change Period (Y+Rc), s	6.2			5.1		6.2	* 6.2					
Max Green Setting (Gmax), s	69.2			9.5		21.7	* 43					
Max Q Clear Time (g_c+l1), s	2.0			10.3		19.9	22.7					
Green Ext Time (p_c), s	4.3			0.0		0.3	7.7					
Intersection Summary												
HCM 7th Control Delay, s/veh	22.4											
HCM 7th LOS	C											
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 4: Genesee Ave. & SR-52 EB Ramps

Proposed Plan Conditions
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	→	↑	→	←	↑
Traffic Volume (veh/h)	100	200	1460	830	380	650
Future Volume (veh/h)	100	200	1460	830	380	650
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	105	169	1537	0	400	684
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	218	194	1092		263	1431
Arrive On Green	0.12	0.12	0.60	0.00	0.15	0.78
Sat Flow, veh/h	1781	1585	1826	1547	1739	1826
Grp Volume(v), veh/h	105	169	1537	0	400	684
Grp Sat Flow(s), veh/h/ln	1781	1585	1826	1547	1739	1826
Q Serve(g_s), s	7.4	14.1	80.4	0.0	20.3	17.4
Cycle Q Clear(g_c), s	7.4	14.1	80.4	0.0	20.3	17.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	218	194	1092		263	1431
V/C Ratio(X)	0.48	0.87	1.41		1.52	0.48
Avail Cap(c_a), veh/h	424	377	1092		263	1431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	58.0	27.0	0.0	57.1	5.0
Incr Delay (d2), s/veh	0.6	4.6	189.1	0.0	254.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	5.9	88.5	0.0	27.2	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	55.6	62.6	216.1	0.0	311.3	5.1
LnGrp LOS	E	E	F		F	A
Approach Vol, veh/h	274		1537			1084
Approach Delay, s/veh	59.9		216.1			118.1
Approach LOS	E		F			F
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	35.0	87.9		21.6		112.9
Change Period (Y+Rc), s	4.7	7.5		5.1		7.5
Max Green Setting (Gmax), s	20.3	80.4		32.0		105.4
Max Q Clear Time (g_c+2.3), s	22.3	82.4		16.1		19.4
Green Ext Time (p_c), s	0.0	0.0		0.4		2.8
Intersection Summary						
HCM 7th Control Delay, s/veh			164.6			
HCM 7th LOS			F			
Notes						
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 7th Signalized Intersection Summary 5: Clairemont Mesa Blvd & Luna Ave.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	570	20	180	20	20	90	180	1090	50	70	450	350
Future Volume (veh/h)	570	20	180	20	20	90	180	1090	50	70	450	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1841	1841	1841	1796	1796	1796
Adj Flow Rate, veh/h	588	21	163	21	21	86	189	1147	42	74	474	368
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	7	7	7
Cap, veh/h	601	78	605	121	131	451	279	1406	612	93	966	425
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.32	0.80	0.80	0.05	0.28	0.28
Sat Flow, veh/h	1279	180	1401	206	304	1045	1753	3497	1522	1711	3413	1503
Grp Volume(v), veh/h	588	0	184	128	0	0	189	1147	42	74	474	368
Grp Sat Flow(s),veh/h/ln	1279	0	1582	1555	0	0	1753	1749	1522	1711	1706	1503
Q Serve(g_s), s	49.9	0.0	9.7	0.0	0.0	0.0	12.2	24.3	0.7	5.6	15.0	30.2
Cycle Q Clear(g_c), s	56.1	0.0	9.7	6.2	0.0	0.0	12.2	24.3	0.7	5.6	15.0	30.2
Prop In Lane	1.00		0.89	0.16		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	601	0	682	703	0	0	279	1406	612	93	966	425
V/C Ratio(X)	0.98	0.00	0.27	0.18	0.00	0.00	0.68	0.82	0.07	0.80	0.49	0.87
Avail Cap(c_a), veh/h	601	0	682	703	0	0	291	1406	612	139	966	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.00	0.78	1.00	0.00	0.00	0.54	0.54	0.54	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	23.8	22.8	0.0	0.0	41.4	10.0	7.7	60.8	38.8	44.2
Incr Delay (d2), s/veh	26.9	0.0	0.2	0.0	0.0	0.0	2.5	3.0	0.1	9.4	1.8	20.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.9	0.0	3.7	2.5	0.0	0.0	4.8	4.5	0.3	2.6	6.5	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.1	0.0	24.0	22.8	0.0	0.0	43.9	13.0	7.8	70.2	40.6	64.6
LnGrp LOS	E		C	C			D	B	A	E	D	E
Approach Vol, veh/h	772					128				1378	916	
Approach Delay, s/veh	56.1					22.8				17.1	52.6	
Approach LOS	E					C				B	D	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	15.5	57.5	61.0		26.0	43.0	61.0					
Change Period (Y+Rc), s	4.4	5.3	4.9		5.3	* 6.2	4.9					
Max Green Setting (Gmax), s	10.6	48.7	56.1		21.6	* 37	56.1					
Max Q Clear Time (g_c+I1), s	17.6	26.3	58.1		14.2	32.2	8.2					
Green Ext Time (p_c), s	0.0	12.9	0.0		0.1	2.0	0.6					
Intersection Summary												
HCM 7th Control Delay, s/veh	36.9											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 6: Jutland Dr. & Luna Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	300	20	360	160	30	10	10	430	40	10	10
Future Volume (veh/h)	10	300	20	360	160	30	10	10	430	40	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	11	316	19	379	168	29	11	11	408	42	11	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	2	2	2
Cap, veh/h	24	375	23	429	684	118	23	13	465	64	296	269
Arrive On Green	0.01	0.22	0.22	0.24	0.44	0.44	0.01	0.31	0.31	0.04	0.33	0.33
Sat Flow, veh/h	1781	1742	105	1781	1546	267	1753	41	1505	1781	892	811
Grp Volume(v), veh/h	11	0	335	379	0	197	11	0	419	42	0	21
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	0	1813	1753	0	1545	1781	0	1702
Q Serve(g_s), s	0.6	0.0	15.7	18.6	0.0	6.1	0.6	0.0	23.3	2.1	0.0	0.8
Cycle Q Clear(g_c), s	0.6	0.0	15.7	18.6	0.0	6.1	0.6	0.0	23.3	2.1	0.0	0.8
Prop In Lane	1.00		0.06	1.00		0.15	1.00		0.97	1.00		0.48
Lane Grp Cap(c), veh/h	24	0	398	429	0	803	23	0	477	64	0	564
V/C Ratio(X)	0.46	0.00	0.84	0.88	0.00	0.25	0.47	0.00	0.88	0.65	0.00	0.04
Avail Cap(c_a), veh/h	100	0	684	975	0	1562	145	0	709	148	0	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	0.0	34.0	33.1	0.0	15.7	44.3	0.0	29.6	43.0	0.0	20.5
Incr Delay (d2), s/veh	13.3	0.0	4.9	6.2	0.0	0.2	13.9	0.0	8.4	10.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	7.4	8.5	0.0	2.5	0.3	0.0	9.4	1.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.6	0.0	38.9	39.3	0.0	15.9	58.2	0.0	38.1	53.7	0.0	20.5
LnGrp LOS	E		D	D		B	E		D	D		C
Approach Vol, veh/h	346			576			430			63		
Approach Delay, s/veh	39.5			31.3			38.6			42.7		
Approach LOS	D			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	32.4	26.3	24.0	5.7	34.5	5.7	44.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	41.5	49.5	33.5	7.5	41.5	5.1	77.9				
Max Q Clear Time (g_c+I1), s	14.5	25.3	20.6	17.7	2.6	2.8	2.6	8.1				
Green Ext Time (p_c), s	0.0	2.7	1.2	1.8	0.0	0.1	0.0	1.3				
Intersection Summary												
HCM 7th Control Delay, s/veh	36.0											
HCM 7th LOS	D											

HCM 7th Signalized Intersection Summary
7: Morena Blvd. & Jutland Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	→	↑	→	←	→
Traffic Volume (veh/h)	240	80	360	490	20	180
Future Volume (veh/h)	240	80	360	490	20	180
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	253	67	379	413	21	189
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	2	2	2	2
Cap, veh/h	373	332	797	675	0	1514
Arrive On Green	0.21	0.21	0.43	0.43	0.00	0.43
Sat Flow, veh/h	1753	1560	1870	1585	0	3647
Grp Volume(v), veh/h	253	67	379	413	0	189
Grp Sat Flow(s), veh/h/ln	1753	1560	1870	1585	0	1777
Q Serve(g_s), s	3.3	0.9	3.6	5.0	0.0	0.8
Cycle Q Clear(g_c), s	3.3	0.9	3.6	5.0	0.0	0.8
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	373	332	797	675	0	1514
V/C Ratio(X)	0.68	0.20	0.48	0.61	0.00	0.12
Avail Cap(c_a), veh/h	950	845	1727	1464	0	4636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.0	8.1	5.1	5.5	0.0	4.3
Incr Delay (d2), s/veh	2.2	0.3	0.4	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.6	0.8	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.2	8.4	5.6	6.4	0.0	4.4
LnGrp LOS	B	A	A	A		A
Approach Vol, veh/h	320		792			189
Approach Delay, s/veh	10.6		6.0			4.4
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	0.0	15.1			15.1	9.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	23.0			32.5	13.5
Max Q Clear Time (g_c+I), s	10.0	7.0			2.8	5.3
Green Ext Time (p_c), s	0.0	3.6			1.2	0.6
Intersection Summary						
HCM 7th Control Delay, s/veh			6.9			
HCM 7th LOS			A			

HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	510	140	310	870	120	380	30	200	80	80	90
Future Volume (veh/h)	50	510	140	310	870	120	380	30	200	80	80	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	53	537	118	326	916	101	400	32	190	84	84	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	4	4	4	2	2	2
Cap, veh/h	117	664	293	342	1121	498	454	33	194	284	283	272
Arrive On Green	0.13	0.38	0.38	0.06	0.10	0.10	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1753	3497	1544	1781	3554	1578	809	65	384	489	560	537
Grp Volume(v), veh/h	53	537	118	326	916	101	622	0	0	254	0	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1544	1781	1777	1578	1257	0	0	1587	0	0
Q Serve(g_s), s	3.6	17.9	7.3	23.7	32.8	7.6	51.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	17.9	7.3	23.7	32.8	7.6	63.1	0.0	0.0	11.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.64		0.31	0.33		0.34
Lane Grp Cap(c), veh/h	117	664	293	342	1121	498	681	0	0	839	0	0
V/C Ratio(X)	0.45	0.81	0.40	0.95	0.82	0.20	0.91	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	117	664	293	342	1121	498	692	0	0	851	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	0.66	0.66	0.66	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.1	38.2	34.9	60.3	54.6	43.3	32.5	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	0.9	8.9	3.5	27.7	4.5	0.6	16.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.1	2.8	14.0	16.4	3.2	21.6	0.0	0.0	4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.0	47.1	38.4	88.0	59.1	43.9	48.5	0.0	0.0	18.8	0.0	0.0
LnGrp LOS	E	D	D	F	E	D	D			B		
Approach Vol, veh/h	708			1343			622			254		
Approach Delay, s/veh	46.2			64.9			48.5			18.8		
Approach LOS	D			E			D			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.4	30.0		70.6	13.1	46.3		70.6				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	23.9	24.7		66.8	7.6	41.0		66.8				
Max Q Clear Time (g_c+25), s	25.7	19.9		13.8	5.6	34.8		65.1				
Green Ext Time (p_c), s	0.0	2.4		1.2	0.0	4.2		0.6				
Intersection Summary												
HCM 7th Control Delay, s/veh	52.9											
HCM 7th LOS	D											

HCM 7th Signalized Intersection Summary 9: Clairemont Dr. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	320	210	320	610	180	300	400	300	160	290	250
Future Volume (veh/h)	200	320	210	320	610	180	300	400	300	160	290	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	211	337	199	337	642	170	316	421	253	168	305	210
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	260	595	344	660	1094	289	341	506	722	193	350	412
Arrive On Green	0.13	0.46	0.46	0.38	0.79	0.79	0.19	0.27	0.27	0.11	0.19	0.19
Sat Flow, veh/h	3456	2162	1250	3456	2753	728	1781	1870	1549	1767	1856	1557
Grp Volume(v), veh/h	211	276	260	337	414	398	316	421	253	168	305	210
Grp Sat Flow(s),veh/h/ln	1728	1777	1635	1728	1777	1704	1781	1870	1549	1767	1856	1557
Q Serve(g_s), s	7.7	14.7	15.2	9.7	11.6	11.7	22.7	27.5	3.6	12.2	20.8	14.9
Cycle Q Clear(g_c), s	7.7	14.7	15.2	9.7	11.6	11.7	22.7	27.5	3.6	12.2	20.8	14.9
Prop In Lane	1.00		0.76	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	489	450	660	706	677	341	506	722	193	350	412
V/C Ratio(X)	0.81	0.56	0.58	0.51	0.59	0.59	0.93	0.83	0.35	0.87	0.87	0.51
Avail Cap(c_a), veh/h	287	489	450	660	706	677	392	600	800	226	427	476
HCM Platoon Ratio	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	0.45	0.45	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	29.4	29.6	35.5	9.2	9.2	51.7	44.6	9.3	57.0	51.2	40.7
Incr Delay (d2), s/veh	6.7	2.2	2.5	0.1	1.6	1.7	24.7	8.7	0.3	23.7	15.8	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	5.7	5.4	3.6	3.2	3.1	12.4	13.8	2.6	6.7	11.1	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.7	31.6	32.1	35.6	10.8	10.9	76.4	53.3	9.6	80.7	67.0	41.9
LnGrp LOS	E	C	C	D	B	B	E	D	A	F	E	D
Approach Vol, veh/h	747				1149				990		683	
Approach Delay, s/veh	40.5				18.1				49.5		62.7	
Approach LOS	D				B				D		E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.9	41.0	29.3	29.8	14.2	56.8	18.6	40.5				
Change Period (Y+Rc), s	5.1	* 5.2	4.4	* 5.3	4.4	5.1	4.4	5.3				
Max Green Setting (Gmax), s	10.6	* 36	28.6	* 30	10.8	41.7	16.6	41.7				
Max Q Clear Time (g_c+I1), s	17.2	17.2	24.7	22.8	9.7	13.7	14.2	29.5				
Green Ext Time (p_c), s	0.3	3.5	0.2	1.7	0.0	6.8	0.1	3.1				
Intersection Summary												
HCM 7th Control Delay, s/veh	40.0											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 10: Rolfe Rd. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	540	100	70	700	230	150	30	140	150	20	260
Future Volume (veh/h)	140	540	100	70	700	230	150	30	140	150	20	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	568	94	74	737	218	158	32	132	158	21	247
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1423	235	93	766	227	200	45	142	403	46	546
Arrive On Green	0.46	0.93	0.93	0.10	0.57	0.57	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1781	3051	503	1781	2692	796	428	123	383	1222	125	1474
Grp Volume(v), veh/h	147	330	332	74	486	469	322	0	0	158	0	268
Grp Sat Flow(s),veh/h/ln	1781	1777	1778	1781	1777	1712	933	0	0	1222	0	1599
Q Serve(g_s), s	7.0	2.6	2.6	5.3	33.9	33.9	28.6	0.0	0.0	0.0	0.0	16.5
Cycle Q Clear(g_c), s	7.0	2.6	2.6	5.3	33.9	33.9	45.1	0.0	0.0	17.0	0.0	16.5
Prop In Lane	1.00		0.28	1.00		0.47	0.49		0.41	1.00		0.92
Lane Grp Cap(c), veh/h	408	828	829	93	506	487	387	0	0	403	0	593
V/C Ratio(X)	0.36	0.40	0.40	0.79	0.96	0.96	0.83	0.00	0.00	0.39	0.00	0.45
Avail Cap(c_a), veh/h	408	828	829	163	506	487	447	0	0	458	0	666
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.76	0.76	0.76	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.0	2.4	2.4	57.5	27.3	27.3	45.9	0.0	0.0	31.1	0.0	30.9
Incr Delay (d2), s/veh	0.2	1.2	1.2	4.4	26.7	27.3	10.9	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	1.0	1.0	2.4	13.8	13.4	11.3	0.0	0.0	3.8	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.2	3.6	3.6	61.9	54.0	54.6	56.8	0.0	0.0	31.3	0.0	31.1
LnGrp LOS	C	A	A	E	D	D	E			C		C
Approach Vol, veh/h	809			1029			322			426		
Approach Delay, s/veh	8.3			54.9			56.8			31.2		
Approach LOS	A			D			E			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.2	65.7		53.1	34.9	42.0		53.1				
Change Period (Y+Rc), s	4.4	5.1		4.9	5.1	* 5		4.9				
Max Green Setting (Gmax), s	1.9	49.6		54.1	24.6	* 37		54.1				
Max Q Clear Time (g_c+I1), s	4.6	4.6		19.0	9.0	35.9		47.1				
Green Ext Time (p_c), s	0.0	7.8		1.5	0.2	0.8		1.1				

Intersection Summary

HCM 7th Control Delay, s/veh 36.6
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
11: Kleefeld Ave./Clairemont Dr. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	550	80	80	770	390	70	40	60	400	50	260
Future Volume (veh/h)	240	550	80	80	770	390	70	40	60	400	50	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	253	579	76	84	811	329	74	42	57	459	0	219
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	4	4	2	2	2	3	3	3
Cap, veh/h	561	1071	140	404	882	387	88	50	68	581	0	257
Arrive On Green	0.63	0.68	0.68	0.08	0.08	0.08	0.12	0.12	0.12	0.16	0.00	0.16
Sat Flow, veh/h	1781	3158	414	1753	3497	1532	740	420	570	3534	0	1561
Grp Volume(v), veh/h	253	325	330	84	811	329	173	0	0	459	0	219
Grp Sat Flow(s),veh/h/ln	1781	1777	1795	1753	1749	1532	1729	0	0	1767	0	1561
Q Serve(g_s), s	9.5	12.1	12.1	5.8	29.9	27.5	12.7	0.0	0.0	16.2	0.0	17.7
Cycle Q Clear(g_c), s	9.5	12.1	12.1	5.8	29.9	27.5	12.7	0.0	0.0	16.2	0.0	17.7
Prop In Lane	1.00		0.23	1.00		1.00	0.43		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	561	603	609	404	882	387	206	0	0	581	0	257
V/C Ratio(X)	0.45	0.54	0.54	0.21	0.92	0.85	0.84	0.00	0.00	0.79	0.00	0.85
Avail Cap(c_a), veh/h	561	603	609	404	882	387	386	0	0	788	0	348
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.23	0.23	0.23	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	15.7	15.8	48.9	58.3	57.2	56.1	0.0	0.0	52.2	0.0	52.8
Incr Delay (d2), s/veh	0.2	3.1	3.1	0.0	4.7	5.6	3.5	0.0	0.0	2.6	0.0	11.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	4.1	4.2	2.6	14.7	12.0	5.8	0.0	0.0	7.4	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.4	18.9	18.9	48.9	63.0	62.8	59.6	0.0	0.0	54.8	0.0	63.9
LnGrp LOS	B	B	B	D	E	E	E			D		E
Approach Vol, veh/h	908				1224				173		678	
Approach Delay, s/veh	18.8				62.0				59.6		57.7	
Approach LOS	B				E				E		E	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	34.4	49.0	20.4		45.4	38.0	26.3					
Change Period (Y+Rc), s	4.4	4.9	4.9		4.4	5.2	4.9					
Max Green Setting (Gmax), s	34.8	44.1	29.0		19.8	32.8	29.0					
Max Q Clear Time (g_c+I1), s	14.1	14.1	14.7		11.5	31.9	19.7					
Green Ext Time (p_c), s	0.0	7.0	0.5		0.2	0.7	1.1					
Intersection Summary												
HCM 7th Control Delay, s/veh	47.7											
HCM 7th LOS	D											
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 7th Signalized Intersection Summary 12: Genesee Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑	↗	↗	↑	↗
Traffic Volume (veh/h)	240	510	300	190	780	370	240	1120	230	160	410	110
Future Volume (veh/h)	240	510	300	190	780	370	240	1120	230	160	410	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	247	526	247	200	821	311	253	1179	194	168	432	93
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	7	7	7	3	3	3	5	5	5
Cap, veh/h	251	861	511	1070	1704	885	310	886	1256	155	877	854
Arrive On Green	0.12	0.41	0.41	0.32	0.50	0.50	0.09	0.48	0.48	0.09	0.48	0.48
Sat Flow, veh/h	3401	3497	1505	3319	3413	1501	3428	1856	1568	1739	1826	1541
Grp Volume(v), veh/h	247	526	247	200	821	311	253	1179	194	168	432	93
Grp Sat Flow(s),veh/h/ln	1700	1749	1505	1659	1706	1501	1714	1856	1568	1739	1826	1541
Q Serve(g_s), s	9.4	15.4	11.9	5.6	20.6	9.4	9.4	62.1	0.0	11.6	20.9	3.7
Cycle Q Clear(g_c), s	9.4	15.4	11.9	5.6	20.6	9.4	9.4	62.1	0.0	11.6	20.9	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	251	861	511	1070	1704	885	310	886	1256	155	877	854
V/C Ratio(X)	0.98	0.61	0.48	0.19	0.48	0.35	0.82	1.33	0.15	1.08	0.49	0.11
Avail Cap(c_a), veh/h	251	861	511	1070	1704	885	570	886	1256	155	877	854
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	33.4	23.6	31.8	21.5	25.6	58.1	33.9	3.0	59.2	23.0	13.7
Incr Delay (d2), s/veh	47.2	2.7	2.7	0.0	0.5	0.6	2.0	156.3	0.0	96.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	6.0	3.8	2.3	8.2	2.7	4.1	64.8	0.9	9.1	8.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	104.2	36.1	26.3	31.8	22.0	26.2	60.1	190.3	3.0	155.3	23.1	13.8
LnGrp LOS	F	D	C	C	C	C	E	F	A	F	C	B
Approach Vol, veh/h	1020			1332			1626			693		
Approach Delay, s/veh	50.2			24.5			147.7			53.9		
Approach LOS	D			C			F			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	48.0	37.0	16.1	67.4	14.0	71.0	16.5	67.0				
Change Period (Y+Rc), s	5.0	* 5	4.4	4.9	4.4	5.0	4.9	* 4.9				
Max Green Setting (Gmax), s	5.6	* 32	21.6	52.1	9.6	28.0	11.6	* 62				
Max Q Clear Time (g_c+I1), s	17.6	17.4	11.4	22.9	11.4	22.6	13.6	64.1				
Green Ext Time (p_c), s	0.0	4.1	0.3	1.6	0.0	3.1	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 77.3
HCM 7th LOS E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 13: Limerick Ave. & Clairemont Mesa Blvd

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	870	180	160	720	320	160	210	170	370	210	120
Future Volume (veh/h)	150	870	180	160	720	320	160	210	170	370	210	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	916	151	168	758	270	168	221	161	389	221	113
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	181	969	408	330	1292	560	194	234	170	406	413	211
Arrive On Green	0.11	0.28	0.28	0.19	0.37	0.37	0.11	0.24	0.24	0.23	0.36	0.36
Sat Flow, veh/h	1711	3413	1438	1739	3469	1503	1781	992	722	1781	1152	589
Grp Volume(v), veh/h	158	916	151	168	758	270	168	0	382	389	0	334
Grp Sat Flow(s),veh/h/ln	1711	1706	1438	1739	1735	1503	1781	0	1714	1781	0	1741
Q Serve(g_s), s	11.8	34.2	9.5	11.3	22.8	11.8	12.1	0.0	28.5	28.1	0.0	19.8
Cycle Q Clear(g_c), s	11.8	34.2	9.5	11.3	22.8	11.8	12.1	0.0	28.5	28.1	0.0	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.34
Lane Grp Cap(c), veh/h	181	969	408	330	1292	560	194	0	404	406	0	624
V/C Ratio(X)	0.87	0.95	0.37	0.51	0.59	0.48	0.87	0.00	0.95	0.96	0.00	0.54
Avail Cap(c_a), veh/h	184	969	408	330	1292	560	277	0	410	406	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.2	45.6	28.2	47.2	32.8	13.5	57.0	0.0	48.9	49.6	0.0	33.1
Incr Delay (d2), s/veh	25.7	15.0	1.9	0.5	2.0	3.0	13.6	0.0	30.4	33.9	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	16.3	3.5	4.9	9.8	4.4	6.2	0.0	15.6	16.3	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.9	60.6	30.2	47.7	34.7	16.5	70.6	0.0	79.3	83.5	0.0	33.6
LnGrp LOS	F	E	C	D	C	B	E		E	F		C
Approach Vol, veh/h	1225			1196			550			723		
Approach Delay, s/veh	59.7			32.4			76.7			60.4		
Approach LOS	E			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.7	41.9	18.5	51.5	18.2	53.4	34.5	35.5				
Change Period (Y+Rc), s	4.9	* 5	4.4	4.9	4.4	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	13.3	* 37	20.2	40.5	14.0	36.7	29.6	* 31				
Max Q Clear Time (g_c+113), s	113.3	36.2	14.1	21.8	13.8	24.8	30.1	30.5				
Green Ext Time (p_c), s	0.0	0.7	0.1	1.3	0.0	9.3	0.0	0.1				

Intersection Summary

HCM 7th Control Delay, s/veh 53.5
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
 15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd

Proposed Plan Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑	↑↑			
Traffic Volume (veh/h)	0	980	680	0	0	0	0	1	530	0	0	400
Future Volume (veh/h)	0	980	680	0	0	0	0	1	530	0	0	400
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	0	1826	1826				0	1870	1870			
Adj Flow Rate, veh/h	0	1032	0				0	1	469			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	0	5	5				0	2	2			
Cap, veh/h	0	1868					0	444	662			
Arrive On Green	0.00	0.37	0.00				0.00	0.24	0.24			
Sat Flow, veh/h	0	5149	1547				0	1870	2790			
Grp Volume(v), veh/h	0	1032	0				0	1	469			
Grp Sat Flow(s),veh/h/ln	0	1662	1547				0	1870	1395			
Q Serve(g_s), s	0.0	4.7	0.0				0.0	0.0	4.4			
Cycle Q Clear(g_c), s	0.0	4.7	0.0				0.0	0.0	4.4			
Prop In Lane	0.00		1.00				0.00		1.00			
Lane Grp Cap(c), veh/h	0	1868					0	444	662			
V/C Ratio(X)	0.00	0.55					0.00	0.00	0.71			
Avail Cap(c_a), veh/h	0	3136					0	712	1063			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	0.0	7.1	0.0				0.0	8.3	10.0			
Incr Delay (d2), s/veh	0.0	0.1	0.0				0.0	0.0	0.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.0				0.0	0.0	0.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	7.1	0.0				0.0	8.3	10.5			
LnGrp LOS	A			A B								
Approach Vol, veh/h	1032			470								
Approach Delay, s/veh	7.1			10.5								
Approach LOS	A			B								
Timer - Assigned Phs	2			8								
Phs Duration (G+Y+Rc), s	16.7			11.9								
Change Period (Y+Rc), s	6.0			5.1								
Max Green Setting (Gmax), s	18.0			10.9								
Max Q Clear Time (g_c+I1), s	6.7			6.4								
Green Ext Time (p_c), s	3.9			0.5								
Intersection Summary												
HCM 7th Control Delay, s/veh	8.2											
HCM 7th LOS	A											
Notes												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary
16: Genesee Ave. & Derrick Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	80	60	140	190	40	120	160	1070	270	150	790	80
Future Volume (veh/h)	80	60	140	190	40	120	160	1070	270	150	790	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	84	63	132	200	42	101	168	1126	227	156	823	66
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	96	80	111	300	54	669	150	1787	797	149	1773	772
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.17	1.00	1.00	0.08	0.50	0.50
Sat Flow, veh/h	103	188	262	537	129	1581	1781	3554	1585	1767	3526	1535
Grp Volume(v), veh/h	279	0	0	242	0	101	168	1126	227	156	823	66
Grp Sat Flow(s),veh/h/ln	553	0	0	666	0	1581	1781	1777	1585	1767	1763	1535
Q Serve(g_s), s	8.7	0.0	0.0	0.0	0.0	3.5	7.6	0.0	0.0	7.6	13.6	2.0
Cycle Q Clear(g_c), s	38.1	0.0	0.0	29.4	0.0	3.5	7.6	0.0	0.0	7.6	13.6	2.0
Prop In Lane	0.30		0.47	0.83		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	0	0	355	0	669	150	1787	797	149	1773	772
V/C Ratio(X)	0.98	0.00	0.00	0.68	0.00	0.15	1.12	0.63	0.28	1.05	0.46	0.09
Avail Cap(c_a), veh/h	286	0	0	355	0	669	150	1787	797	149	1773	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.34	0.34	0.34	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	0.0	23.2	0.0	16.0	37.4	0.0	0.0	41.2	14.5	11.6
Incr Delay (d2), s/veh	46.1	0.0	0.0	4.4	0.0	0.0	78.6	0.6	0.3	86.2	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	4.8	0.0	1.2	6.2	0.1	0.1	6.8	5.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.4	0.0	0.0	27.6	0.0	16.0	116.0	0.6	0.3	127.4	15.4	11.8
LnGrp LOS	E			C		B	F	A	A	F	B	B
Approach Vol, veh/h	279			343			1521			1045		
Approach Delay, s/veh	77.4			24.2			13.3			31.9		
Approach LOS	E			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	2.0	51.5		43.0	12.0	51.5		43.0				
Change Period (Y+Rc), s	4.4	* 5.6		4.9	4.4	5.6		4.9				
Max Green Setting (Gmax), s	7.6	* 30		38.1	7.6	29.4		38.1				
Max Q Clear Time (g_c+I), s	19.6	2.0		40.1	9.6	15.6		31.4				
Green Ext Time (p_c), s	0.0	24.6		0.0	0.0	8.6		0.7				

Intersection Summary

HCM 7th Control Delay, s/veh	26.2
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	90	190	230	70	180	260	1200	280	260	660	190
Future Volume (veh/h)	100	90	190	230	70	180	260	1200	280	260	660	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	105	95	180	242	74	170	274	1263	236	274	695	160
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	2	2	2
Cap, veh/h	372	212	402	348	183	421	287	1176	522	249	1107	492
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.16	0.33	0.33	0.28	0.62	0.62
Sat Flow, veh/h	1132	576	1091	1101	497	1142	1767	3526	1565	1781	3554	1580
Grp Volume(v), veh/h	105	0	275	242	0	244	274	1263	236	274	695	160
Grp Sat Flow(s),veh/h/ln	1132	0	1667	1101	0	1640	1767	1763	1565	1781	1777	1580
Q Serve(g_s), s	6.8	0.0	11.2	19.2	0.0	9.9	13.8	30.0	10.6	12.6	10.9	4.3
Cycle Q Clear(g_c), s	16.8	0.0	11.2	30.4	0.0	9.9	13.8	30.0	10.6	12.6	10.9	4.3
Prop In Lane	1.00		0.65	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	0	614	348	0	604	287	1176	522	249	1107	492
V/C Ratio(X)	0.28	0.00	0.45	0.69	0.00	0.40	0.96	1.07	0.45	1.10	0.63	0.33
Avail Cap(c_a), veh/h	395	0	648	371	0	638	287	1176	522	249	1107	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.37	0.37	0.37	0.85	0.85	0.85
Uniform Delay (d), s/veh	27.3	0.0	21.5	33.0	0.0	21.1	37.4	30.0	23.5	32.4	13.7	12.5
Incr Delay (d2), s/veh	0.3	0.0	0.4	4.7	0.0	0.3	21.9	40.0	1.0	81.6	2.3	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.3	5.4	0.0	3.8	7.5	18.5	3.9	10.0	3.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.6	0.0	21.9	37.7	0.0	21.4	59.3	70.0	24.6	114.0	16.0	14.0
LnGrp LOS	C		C	D		C	E	F	C	F	B	B
Approach Vol, veh/h	380			486			1773			1129		
Approach Delay, s/veh	23.5			29.5			62.3			39.5		
Approach LOS	C			C			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	34.9		38.1	19.0	32.9		38.1				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	12.6	28.2		35.0	14.6	26.2		35.0				
Max Q Clear Time (g_c+1/4), s	14.6	32.0		18.8	15.8	12.9		32.4				
Green Ext Time (p_c), s	0.0	0.0		1.6	0.0	5.0		0.6				
Intersection Summary												
HCM 7th Control Delay, s/veh	47.3											
HCM 7th LOS	D											

HCM 7th Signalized Intersection Summary 18: Genesee Ave. & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	1100	230	110	980	400	230	740	200	250	480	280
Future Volume (veh/h)	350	1100	230	110	980	400	230	740	200	250	480	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1856	1856	1856
Adj Flow Rate, veh/h	368	1158	194	115	1021	334	242	779	169	263	505	236
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	3	3	3
Cap, veh/h	392	1730	767	1032	2932	910	272	814	363	304	871	385
Arrive On Green	0.22	0.49	0.49	0.10	0.19	0.19	0.08	0.24	0.24	0.09	0.25	0.25
Sat Flow, veh/h	1767	3526	1563	3456	5106	1585	3346	3441	1535	3428	3526	1559
Grp Volume(v), veh/h	368	1158	194	115	1021	334	242	779	169	263	505	236
Grp Sat Flow(s),veh/h/ln	1767	3526	1563	3456	5106	1585	3346	3441	1535	3428	3526	1559
Q Serve(g_s), s	28.7	34.9	12.3	4.2	24.3	31.7	10.0	31.3	13.2	10.6	17.6	18.8
Cycle Q Clear(g_c), s	28.7	34.9	12.3	4.2	24.3	31.7	10.0	31.3	13.2	10.6	17.6	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	1730	767	1032	2932	910	272	814	363	304	871	385
V/C Ratio(X)	0.94	0.67	0.25	0.11	0.35	0.37	0.89	0.96	0.47	0.87	0.58	0.61
Avail Cap(c_a), veh/h	500	1730	767	1032	2932	910	272	814	363	304	871	385
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	0.72	0.72	0.72	0.72	0.72	0.72
Uniform Delay (d), s/veh	53.6	27.0	30.7	46.2	34.0	52.5	63.7	52.8	45.9	63.0	46.3	46.8
Incr Delay (d2), s/veh	20.8	2.1	0.8	0.0	0.3	1.0	21.1	17.7	1.2	16.4	1.0	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	14.5	4.8	1.8	11.2	13.8	5.1	15.4	5.2	5.3	7.8	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.3	29.1	31.5	46.2	34.3	53.5	84.8	70.4	47.1	79.3	47.3	49.4
LnGrp LOS	E	C	C	D	C	D	F	E	D	E	D	D
Approach Vol, veh/h	1720				1470				1190			
Approach Delay, s/veh	39.1				39.6				70.0			
Approach LOS	D				D				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	48.1	74.0	15.8	39.5	35.4	86.7	17.3	38.0				
Change Period (Y+Rc), s	5.4	* 5.3	4.4	4.9	4.4	5.4	4.9	* 4.9				
Max Green Setting (Gmax), s	69.8	* 69	11.4	34.1	39.6	35.8	12.4	* 33				
Max Q Clear Time (g_c+I), s	16.2	36.9	12.0	20.8	30.7	33.7	12.6	33.3				
Green Ext Time (p_c), s	0.0	11.5	0.0	5.3	0.4	1.5	0.0	0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	49.2											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	160	110	210	250	140	90	950	190	130	630	100
Future Volume (veh/h)	120	160	110	210	250	140	90	950	190	130	630	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1811	1811	1811
Adj Flow Rate, veh/h	126	168	116	221	263	147	95	1000	160	137	663	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	6	6	6
Cap, veh/h	152	191	132	248	455	375	117	1072	467	353	1572	691
Arrive On Green	0.09	0.19	0.19	0.14	0.24	0.24	0.07	0.31	0.31	0.20	0.46	0.46
Sat Flow, veh/h	1781	1011	698	1781	1870	1541	1725	3441	1497	1725	3441	1513
Grp Volume(v), veh/h	126	0	284	221	263	147	95	1000	160	137	663	84
Grp Sat Flow(s),veh/h/ln	1781	0	1709	1781	1870	1541	1725	1721	1497	1725	1721	1513
Q Serve(g_s), s	9.1	0.0	21.0	15.8	16.1	6.5	7.1	36.7	10.7	8.9	16.9	4.2
Cycle Q Clear(g_c), s	9.1	0.0	21.0	15.8	16.1	6.5	7.1	36.7	10.7	8.9	16.9	4.2
Prop In Lane	1.00		0.41	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	0	323	248	455	375	117	1072	467	353	1572	691
V/C Ratio(X)	0.83	0.00	0.88	0.89	0.58	0.39	0.81	0.93	0.34	0.39	0.42	0.12
Avail Cap(c_a), veh/h	425	0	407	425	455	375	194	1072	467	353	1572	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	58.5	0.0	51.2	55.0	43.3	16.3	59.8	43.4	34.5	44.7	23.8	20.3
Incr Delay (d2), s/veh	4.4	0.0	14.1	6.2	1.2	0.2	5.1	15.4	2.0	0.2	0.7	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	10.3	7.5	7.6	2.4	3.2	17.3	4.2	3.8	6.9	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.9	0.0	65.4	61.2	44.5	16.6	64.8	58.9	36.5	44.9	24.5	20.6
LnGrp LOS	E		E	E	D	B	E	E	D	D	C	C
Approach Vol, veh/h	410				631				1255		884	
Approach Delay, s/veh	64.6				43.9				56.5		27.3	
Approach LOS	E				D				E		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.5	46.0	23.0	29.5	13.2	64.3	16.0	36.5				
Change Period (Y+Rc), s	4.9	* 5.5	4.9	4.9	4.4	4.9	4.9	4.9				
Max Green Setting (Gmax), s	7.8	* 41	31.0	31.0	14.6	34.3	31.0	31.0				
Max Q Clear Time (g_c+T1), s	110.9	38.7	17.8	23.0	9.1	18.9	11.1	18.1				
Green Ext Time (p_c), s	0.0	1.4	0.3	0.7	0.0	10.4	0.1	1.1				

Intersection Summary

HCM 7th Control Delay, s/veh 46.9
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	10	60	10	130	10	540	10	60	430	50
Future Vol, veh/h	10	10	10	60	10	130	10	540	10	60	430	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	80	-	-	45	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	11	11	63	11	137	11	568	11	63	453	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1200	1207	479	1181	1228	576	505	0	0	581	0	0
Stage 1	605	605	-	597	597	-	-	-	-	-	-	-
Stage 2	595	602	-	584	632	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	162	183	669	167	178	517	1049	-	-	993	-	-
Stage 1	521	493	-	490	492	-	-	-	-	-	-	-
Stage 2	491	489	-	538	476	-	-	-	-	-	-	-
Platoon blocked, %			0			0		-	-		-	-
Mov Cap-1 Maneuver	107	169	669	147	165	516	1049	-	-	991	-	-
Mov Cap-2 Maneuver	209	278	-	286	284	-	-	-	-	-	-	-
Stage 1	487	462	-	484	486	-	-	-	-	-	-	-
Stage 2	349	483	-	485	446	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	18.24		23.36		0.15		0.99					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1049	-	-	303	402	991	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.104	0.523	0.064	-	-				
HCM Ctrl Dly (s/v)	8.5	-	-	18.2	23.4	8.9	-	-				
HCM Lane LOS	A	-	-	C	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	2.9	0.2	-	-				

HCM 7th Signalized Intersection Summary
21: Mt. Alifan Dr./Mt. Abernathy Ave. & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 			 		
Traffic Volume (veh/h)	100	1200	70	290	1280	190	80	190	410	230	180	130
Future Volume (veh/h)	100	1200	70	290	1280	190	80	190	410	230	180	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	1263	59	305	1347	160	84	200	346	242	189	110
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	2141	660	358	2832	875	128	286	552	290	374	314
Arrive On Green	0.07	0.42	0.42	0.40	1.00	1.00	0.04	0.15	0.15	0.08	0.20	0.20
Sat Flow, veh/h	1781	5106	1574	1781	5106	1578	3456	1870	1529	3456	1870	1568
Grp Volume(v), veh/h	105	1263	59	305	1347	160	84	200	346	242	189	110
Grp Sat Flow(s),veh/h/ln	1781	1702	1574	1781	1702	1578	1728	1870	1529	1728	1870	1568
Q Serve(g_s), s	8.1	26.7	2.6	21.8	0.0	0.0	3.4	14.2	4.7	9.7	12.6	8.4
Cycle Q Clear(g_c), s	8.1	26.7	2.6	21.8	0.0	0.0	3.4	14.2	4.7	9.7	12.6	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	2141	660	358	2832	875	128	286	552	290	374	314
V/C Ratio(X)	0.82	0.59	0.09	0.85	0.48	0.18	0.66	0.70	0.63	0.83	0.50	0.35
Avail Cap(c_a), veh/h	262	2141	660	358	2832	875	180	529	751	336	613	514
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.49	0.49	0.49	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.1	31.4	16.4	40.0	0.0	0.0	66.5	56.2	19.9	63.2	49.8	48.2
Incr Delay (d2), s/veh	3.4	0.8	0.2	9.2	0.3	0.2	2.1	1.2	0.4	12.9	0.4	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	10.8	1.2	8.4	0.1	0.1	1.5	6.8	6.7	4.8	6.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.5	32.2	16.6	49.2	0.3	0.2	68.7	57.4	20.4	76.1	50.2	48.4
LnGrp LOS	E	C	B	D	A	A	E	E	C	E	D	D
Approach Vol, veh/h	1427			1812			630			541		
Approach Delay, s/veh	34.1			8.5			38.5			61.4		
Approach LOS	C			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.5	64.0	9.6	32.9	14.4	83.1	16.2	26.3				
Change Period (Y+Rc), s	5.4	* 5.3	4.4	4.9	4.4	5.4	4.4	4.9				
Max Green Setting (Gmax), s	9.1	* 59	7.3	45.9	20.6	47.1	13.6	39.6				
Max Q Clear Time (g_c+I1), s	23.8	28.7	5.4	14.6	10.1	2.0	11.7	16.2				
Green Ext Time (p_c), s	0.0	21.9	0.0	0.9	0.1	30.3	0.1	1.4				

Intersection Summary

HCM 7th Control Delay, s/veh 27.6
HCM 7th LOS C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 15.4

Intersection LOS C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↕	↕	↱
Traffic Vol, veh/h	100	160	230	250	380	180
Future Vol, veh/h	100	160	230	250	380	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	168	242	263	400	189
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	3	0	2
HCM Control Delay, s/veh	13.4	14.2	17.4
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	41%
Vol Right, %	0%	0%	0%	0%	100%	0%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	230	125	125	100	160	253	307
LT Vol	230	0	0	100	0	0	0
Through Vol	0	125	125	0	0	253	127
RT Vol	0	0	0	0	160	0	180
Lane Flow Rate	242	132	132	105	168	267	323
Geometry Grp	6	6	6	6	6	6	6
Degree of Util (X)	0.511	0.259	0.195	0.241	0.329	0.513	0.584
Departure Headway (Hd)	7.599	7.09	5.324	8.248	7.03	6.928	6.51
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	477	508	675	436	512	523	555
Service Time	5.319	4.81	3.044	5.992	4.773	4.648	4.229
HCM Lane V/C Ratio	0.507	0.26	0.196	0.241	0.328	0.511	0.582
HCM Control Delay, s/veh	18	12.3	9.3	13.6	13.2	16.7	18
HCM Lane LOS	C	B	A	B	B	C	C
HCM 95th-tile Q	2.9	1	0.7	0.9	1.4	2.9	3.7

HCM 7th Signalized Intersection Summary
23: Mt. Albertine Ave./Cannington Dr. & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1690	150	90	1690	130	50	50	180	140	30	110
Future Volume (veh/h)	120	1690	150	90	1690	130	50	50	180	140	30	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	1779	126	95	1779	110	53	53	170	147	32	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	2241	677	117	2155	668	59	59	189	151	33	107
Arrive On Green	0.16	0.88	0.88	0.07	0.42	0.42	0.19	0.19	0.19	0.17	0.17	0.17
Sat Flow, veh/h	1781	5106	1543	1781	5106	1581	316	316	1014	890	194	629
Grp Volume(v), veh/h	126	1779	126	95	1779	110	276	0	0	283	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1543	1781	1702	1581	1646	0	0	1713	0	0
Q Serve(g_s), s	9.6	19.7	1.7	7.4	43.3	6.0	23.0	0.0	0.0	23.0	0.0	0.0
Cycle Q Clear(g_c), s	9.6	19.7	1.7	7.4	43.3	6.0	23.0	0.0	0.0	23.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.19		0.62	0.52		0.37
Lane Grp Cap(c), veh/h	147	2241	677	117	2155	668	306	0	0	290	0	0
V/C Ratio(X)	0.86	0.79	0.19	0.81	0.83	0.16	0.90	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	148	2241	677	288	2155	668	366	0	0	290	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	0.76	0.76	0.76	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.7	6.0	4.9	64.5	35.9	25.1	55.7	0.0	0.0	57.9	0.0	0.0
Incr Delay (d2), s/veh	28.1	2.3	0.5	3.8	2.9	0.4	20.2	0.0	0.0	46.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	3.0	0.6	3.4	17.8	2.3	11.3	0.0	0.0	13.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	85.8	8.3	5.4	68.4	38.8	25.5	75.9	0.0	0.0	103.8	0.0	0.0
LnGrp LOS	F	A	A	E	D	C	E			F		
Approach Vol, veh/h	2031			1984			276			283		
Approach Delay, s/veh	12.9			39.5			75.9			103.8		
Approach LOS	B			D			E			F		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.6	66.8		31.0	15.9	64.5		28.6				
Change Period (Y+Rc), s	4.4	* 5.4		4.9	4.4	5.4		4.9				
Max Green Setting (Gmax), s	22.6	* 43		31.1	11.6	54.0		23.7				
Max Q Clear Time (g_c+I), s	19.4	21.7		25.0	11.6	45.3		25.0				
Green Ext Time (p_c), s	0.1	18.4		0.6	0.0	7.5		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 33.8
HCM 7th LOS C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 24: Eckstrom Ave./Charger Blvd. & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩ ↑↑↑			↩ ↑↑↑		↩	↩	↩	↩↑↑	↩	↩	
Traffic Volume (veh/h)	40	1840	130	310	1580	200	120	90	440	280	140	50
Future Volume (veh/h)	40	1840	130	310	1580	200	120	90	440	280	140	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.98	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1917	126	326	1663	169	111	117	332	295	147	48
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	54	2025	133	323	2870	868	121	127	792	348	257	84
Arrive On Green	0.06	0.83	0.83	0.18	0.57	0.57	0.07	0.07	0.07	0.20	0.20	0.20
Sat Flow, veh/h	1781	4892	320	1767	5066	1532	1781	1870	3122	1781	1317	430
Grp Volume(v), veh/h	42	1332	711	326	1663	169	111	117	332	295	0	195
Grp Sat Flow(s), veh/h/ln	1781	1702	1809	1767	1689	1532	1781	1870	1561	1781	0	1748
Q Serve(g_s), s	3.3	43.3	44.4	25.6	29.7	7.5	8.7	8.7	9.5	22.4	0.0	14.1
Cycle Q Clear(g_c), s	3.3	43.3	44.4	25.6	29.7	7.5	8.7	8.7	9.5	22.4	0.0	14.1
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	54	1409	749	323	2870	868	121	127	792	348	0	341
V/C Ratio(X)	0.78	0.95	0.95	1.01	0.58	0.19	0.92	0.92	0.42	0.85	0.00	0.57
Avail Cap(c_a), veh/h	113	1409	749	323	2870	868	121	127	792	396	0	388
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	0.67	0.67	0.67	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.3	10.8	10.9	57.2	19.6	14.8	64.9	64.9	44.0	54.3	0.0	51.0
Incr Delay (d2), s/veh	4.4	8.0	13.7	43.2	0.6	0.3	56.8	56.0	0.3	12.9	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.8	7.4	15.0	11.1	2.6	5.9	6.1	4.9	11.3	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.7	18.8	24.5	100.4	20.2	15.1	121.6	120.9	44.2	67.2	0.0	51.6
LnGrp LOS	E	B	C	F	C	B	F	F	D	E		D
Approach Vol, veh/h	2085			2158			560			490		
Approach Delay, s/veh	21.7			31.9			75.6			61.0		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.0	63.4		14.4	8.6	84.7		32.2				
Change Period (Y+Rc), s	4.4	* 5.4		4.9	4.4	5.4		4.9				
Max Green Setting (Gmax), s	25.6	* 54		9.5	8.9	70.9		31.1				
Max Q Clear Time (g_c+Y), s	27.6	46.4		11.5	5.3	31.7		24.4				
Green Ext Time (p_c), s	0.0	7.5		0.0	0.0	23.9		0.8				

Intersection Summary

HCM 7th Control Delay, s/veh 35.2
HCM 7th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑					↑	↑↑↑
Traffic Volume (veh/h)	0	0	0	0	1800	280	0	0	430	0	1	330
Future Volume (veh/h)	0	0	0	0	1800	280	0	0	430	0	1	330
Initial Q (Qb), veh				0	0	0				0	0	0
Lane Width Adj.				1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach				No						No		
Adj Sat Flow, veh/h/ln				0	1841	1841				0	1870	1870
Adj Flow Rate, veh/h				0	1895	0				0	1	267
Peak Hour Factor				0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %				0	4	4				0	2	2
Cap, veh/h				0	2686					0	265	387
Arrive On Green				0.00	0.53	0.00				0.00	0.14	0.14
Sat Flow, veh/h				0	5191	1560				0	1870	2727
Grp Volume(v), veh/h				0	1895	0				0	1	267
Grp Sat Flow(s),veh/h/ln				0	1675	1560				0	1870	1364
Q Serve(g_s), s				0.0	9.5	0.0				0.0	0.0	3.1
Cycle Q Clear(g_c), s				0.0	9.5	0.0				0.0	0.0	3.1
Prop In Lane				0.00		1.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	2686					0	265	387
V/C Ratio(X)				0.00	0.71					0.00	0.00	0.69
Avail Cap(c_a), veh/h				0	3313					0	383	559
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	5.9	0.0				0.0	12.4	13.7
Incr Delay (d2), s/veh				0.0	0.3	0.0				0.0	0.0	0.8
Initial Q Delay(d3), s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.9	0.0				0.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				0.0	6.2	0.0				0.0	12.4	14.6
LnGrp LOS					A						B	B
Approach Vol, veh/h					1895						268	
Approach Delay, s/veh					6.2						14.6	
Approach LOS					A						B	
Timer - Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				9.9		23.8						
Change Period (Y+Rc), s				5.1		5.8						
Max Green Setting (Gmax), s				6.9		22.2						
Max Q Clear Time (g_c+l1), s				5.1		11.5						
Green Ext Time (p_c), s				0.1		6.5						
Intersection Summary												
HCM 7th Control Delay, s/veh				7.2								
HCM 7th LOS				A								
Notes												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗					↑	↗↗			
Traffic Volume (veh/h)	0	1620	860	0	0	0	0	1	460	0	0	380
Future Volume (veh/h)	0	1620	860	0	0	0	0	1	460	0	0	380
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	0	1841	1841				0	1870	1870			
Adj Flow Rate, veh/h	0	1653	0				0	1	404			
Peak Hour Factor	0.98	0.98	0.98				0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	4				0	2	2			
Cap, veh/h	0	2388					0	372	555			
Arrive On Green	0.00	0.48	0.00				0.00	0.20	0.20			
Sat Flow, veh/h	0	5191	1560				0	1870	2790			
Grp Volume(v), veh/h	0	1653	0				0	1	404			
Grp Sat Flow(s),veh/h/ln	0	1675	1560				0	1870	1395			
Q Serve(g_s), s	0.0	8.6	0.0				0.0	0.0	4.5			
Cycle Q Clear(g_c), s	0.0	8.6	0.0				0.0	0.0	4.5			
Prop In Lane	0.00		1.00				0.00		1.00			
Lane Grp Cap(c), veh/h	0	2388					0	372	555			
V/C Ratio(X)	0.00	0.69					0.00	0.00	0.73			
Avail Cap(c_a), veh/h	0	3035					0	498	742			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	0.0	6.9	0.0				0.0	10.7	12.5			
Incr Delay (d2), s/veh	0.0	0.3	0.0				0.0	0.0	1.4			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0				0.0	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	7.1	0.0				0.0	10.7	13.9			
LnGrp LOS	A			B								
Approach Vol, veh/h	1653			405								
Approach Delay, s/veh	7.1			13.9								
Approach LOS	A			B								
Timer - Assigned Phs	2			8								
Phs Duration (G+Y+Rc), s	21.7			11.8								
Change Period (Y+Rc), s	5.8			5.1								
Max Green Setting (Gmax), s	20.2			8.9								
Max Q Clear Time (g_c+I1), s	10.6			6.5								
Green Ext Time (p_c), s	5.3			0.3								
Intersection Summary												
HCM 7th Control Delay, s/veh	8.5											
HCM 7th LOS	A											
Notes												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary
27: Clairemont Dr. & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	250	900	150	480	860	200	250	400	420	250	350	380
Future Volume (veh/h)	250	900	150	480	860	200	250	400	420	250	350	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	263	947	142	505	905	190	263	421	442	263	368	360
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	2	2	2
Cap, veh/h	389	965	411	556	1078	465	276	932	659	231	848	549
Arrive On Green	0.11	0.27	0.27	0.16	0.31	0.31	0.16	0.27	0.27	0.13	0.24	0.24
Sat Flow, veh/h	3428	3526	1503	3428	3526	1522	1753	3497	1523	1781	3554	1549
Grp Volume(v), veh/h	263	947	142	505	905	190	263	421	442	263	368	360
Grp Sat Flow(s),veh/h/ln	1714	1763	1503	1714	1763	1522	1753	1749	1523	1781	1777	1549
Q Serve(g_s), s	8.7	31.5	8.9	17.1	28.3	8.0	17.5	11.8	27.6	15.3	10.4	7.0
Cycle Q Clear(g_c), s	8.7	31.5	8.9	17.1	28.3	8.0	17.5	11.8	27.6	15.3	10.4	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	389	965	411	556	1078	465	276	932	659	231	848	549
V/C Ratio(X)	0.68	0.98	0.35	0.91	0.84	0.41	0.95	0.45	0.67	1.14	0.43	0.66
Avail Cap(c_a), veh/h	389	965	411	569	1362	588	276	978	679	231	894	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	42.6	34.4	48.6	38.3	15.1	49.3	36.1	27.1	51.4	38.2	12.8
Incr Delay (d2), s/veh	3.8	24.4	0.6	17.7	3.9	0.6	40.7	0.2	2.2	101.7	0.3	2.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	16.4	3.3	8.4	12.3	2.8	10.7	5.0	10.1	13.3	4.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.0	67.0	35.0	66.2	42.2	15.7	90.0	36.3	29.3	153.1	38.4	15.2
LnGrp LOS	D	E	C	E	D	B	F	D	C	F	D	B
Approach Vol, veh/h	1352			1600			1126			991		
Approach Delay, s/veh	61.1			46.6			46.1			60.4		
Approach LOS	E			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	38.0	23.0	33.5	19.1	42.5	19.7	36.8				
Change Period (Y+Rc), s	4.4	5.7	4.4	5.3	5.7	* 6.4	4.4	5.3				
Max Green Setting (Gmax), s	19.6	32.3	18.6	29.7	5.6	* 46	15.3	33.0				
Max Q Clear Time (g_c+1/9), s	19.6	33.5	19.5	12.4	10.7	30.3	17.3	29.6				
Green Ext Time (p_c), s	0.1	0.0	0.0	2.9	0.0	5.8	0.0	1.2				

Intersection Summary

HCM 7th Control Delay, s/veh 53.1
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
28: I-5 SB Ramps/I-5 SB Loop On Ramp & Clairemont Dr.

Proposed Plan Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	9.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑	↑		↑			
Traffic Vol, veh/h	0	280	110	0	300	830	90	0	560	0	0	0
Future Vol, veh/h	0	280	110	0	300	830	90	0	560	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	90	0	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	295	116	0	316	874	95	0	589	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	-	0	0	-	-	0	511	-	205			
Stage 1	-	-	-	-	-	-	353	-	-			
Stage 2	-	-	-	-	-	-	158	-	-			
Critical Hdwy	-	-	-	-	-	-	6.84	-	6.94			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	-	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	-	-			
Follow-up Hdwy	-	-	-	-	-	-	3.52	-	3.32			
Pot Cap-1 Maneuver	0	-	-	0	-	0	492	0	801			
Stage 1	0	-	-	0	-	0	682	0	-			
Stage 2	0	-	-	0	-	0	854	0	-			
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	492	0	801			
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	0	-			
Stage 1	-	-	-	-	-	-	682	0	-			
Stage 2	-	-	-	-	-	-	854	0	-			
Approach	EB			WB			NB					
HCM Ctrl Dly, s/v	0			0			19.77					
HCM LOS							C					
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBT	EBR	WBT							
Capacity (veh/h)	563 801		-	-	-							
HCM Lane V/C Ratio	0.168 0.736		-	-	-							
HCM Ctrl Dly (s/v)	12.7 20.9		-	-	-							
HCM Lane LOS	B C		-	-	-							
HCM 95th %tile Q(veh)	0.6 6.7		-	-	-							

HCM 7th Signalized Intersection Summary
29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	400	0	0	970	760	160	10	450	0	0	0
Future Volume (veh/h)	290	400	0	0	970	760	160	10	450	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1841	1841	1870	1870	1870			
Adj Flow Rate, veh/h	305	421	0	0	1071	527	168	11	474			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	4	4	2	2	2			
Cap, veh/h	289	2086	0	0	1403	577	526	34	497			
Arrive On Green	0.16	0.59	0.00	0.00	0.38	0.38	0.31	0.31	0.31			
Sat Flow, veh/h	1781	3647	0	0	3681	1513	1677	110	1585			
Grp Volume(v), veh/h	305	421	0	0	1071	527	179	0	474			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1841	1513	1787	0	1585			
Q Serve(g_s), s	17.3	5.9	0.0	0.0	27.1	35.3	8.2	0.0	31.3			
Cycle Q Clear(g_c), s	17.3	5.9	0.0	0.0	27.1	35.3	8.2	0.0	31.3			
Prop In Lane	1.00		0.00	0.00		1.00	0.94		1.00			
Lane Grp Cap(c), veh/h	289	2086	0	0	1403	577	560	0	497			
V/C Ratio(X)	1.06	0.20	0.00	0.00	0.76	0.91	0.32	0.00	0.95			
Avail Cap(c_a), veh/h	289	2180	0	0	1500	616	567	0	503			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.7	10.3	0.0	0.0	28.8	31.4	28.0	0.0	35.9			
Incr Delay (d2), s/veh	68.8	0.0	0.0	0.0	1.9	16.9	0.3	0.0	28.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	13.0	2.2	0.0	0.0	11.9	15.0	3.5	0.0	27.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	113.5	10.3	0.0	0.0	30.8	48.3	28.3	0.0	64.4			
LnGrp LOS	F	B			C	D	C		E			
Approach Vol, veh/h	726			1598			653					
Approach Delay, s/veh	53.7			36.6			54.5					
Approach LOS	D			D			D					
Timer - Assigned Phs	2			4		5	6					
Phs Duration (G+Y+Rc), s	68.2			38.6		22.0	46.2					
Change Period (Y+Rc), s	5.5			5.1		4.7	5.5					
Max Green Setting (Gmax), s	65.5			33.9		17.3	43.5					
Max Q Clear Time (g_c+l1), s	7.9			33.3		19.3	37.3					
Green Ext Time (p_c), s	1.9			0.2		0.0	3.4					

Intersection Summary

HCM 7th Control Delay, s/veh	44.7
HCM 7th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	710	220	140	1150	50	250	60	100	110	60	300
Future Volume (veh/h)	140	710	220	140	1150	50	250	60	100	110	60	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1826	1826	1826	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	747	209	146	1198	42	263	63	94	116	63	284
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	2	2	2
Cap, veh/h	135	1251	557	172	1299	46	257	207	309	142	70	316
Arrive On Green	0.08	0.36	0.36	0.10	0.38	0.38	0.14	0.31	0.31	0.08	0.24	0.24
Sat Flow, veh/h	1753	3497	1556	1739	3419	120	1781	674	1006	1781	294	1326
Grp Volume(v), veh/h	147	747	209	146	608	632	263	0	157	116	0	347
Grp Sat Flow(s),veh/h/ln	1753	1749	1556	1739	1735	1804	1781	0	1680	1781	0	1620
Q Serve(g_s), s	9.6	21.8	8.0	10.3	41.8	41.8	18.0	0.0	8.9	8.0	0.0	25.9
Cycle Q Clear(g_c), s	9.6	21.8	8.0	10.3	41.8	41.8	18.0	0.0	8.9	8.0	0.0	25.9
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.60	1.00		0.82
Lane Grp Cap(c), veh/h	135	1251	557	172	659	685	257	0	516	142	0	386
V/C Ratio(X)	1.09	0.60	0.38	0.85	0.92	0.92	1.03	0.00	0.30	0.82	0.00	0.90
Avail Cap(c_a), veh/h	135	1251	557	273	659	685	257	0	516	351	0	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.43	0.43	0.43	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.7	32.8	12.2	55.4	37.0	37.0	53.5	0.0	33.1	56.6	0.0	46.1
Incr Delay (d2), s/veh	94.3	1.6	1.5	3.5	10.7	10.4	62.9	0.0	0.1	4.4	0.0	11.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	9.4	3.0	4.7	19.2	19.9	12.5	0.0	3.7	3.8	0.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	152.0	34.4	13.7	58.9	47.7	47.4	116.4	0.0	33.2	61.0	0.0	57.4
LnGrp LOS	F	C	B	E	D	D	F		C	E		E
Approach Vol, veh/h	1103			1386			420			463		
Approach Delay, s/veh	46.1			48.7			85.3			58.3		
Approach LOS	D			D			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	56.7	50.6	22.9	34.7	14.0	53.4	14.3	43.3				
Change Period (Y+Rc), s	4.4	* 5.9	4.9	* 4.9	4.4	5.9	4.4	4.9				
Max Green Setting (Gmax), s	19.6	* 27	18.0	* 42	9.6	36.1	24.6	35.1				
Max Q Clear Time (g_c+12.3), s	11.3	23.8	20.0	27.9	11.6	43.8	10.0	10.9				
Green Ext Time (p_c), s	0.1	2.0	0.0	1.3	0.0	0.0	0.1	0.6				

Intersection Summary

HCM 7th Control Delay, s/veh 53.7
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 31: Burgener Blvd. & Clairemont Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↰	↰	↱	↰	↰	↱	↰	↱	↰	↰
Traffic Volume (veh/h)	10	520	270	190	750	10	530	10	240	10	10	10
Future Volume (veh/h)	10	520	270	190	750	10	530	10	240	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	547	227	200	789	9	398	234	228	11	11	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	2	2	2
Cap, veh/h	18	672	1027	231	896	756	528	257	251	20	20	18
Arrive On Green	0.01	0.37	0.37	0.13	0.49	0.49	0.30	0.30	0.30	0.03	0.03	0.03
Sat Flow, veh/h	1739	1826	1541	1739	1826	1541	1781	867	845	591	591	537
Grp Volume(v), veh/h	11	547	227	200	789	9	398	0	462	32	0	0
Grp Sat Flow(s),veh/h/ln	1739	1826	1541	1739	1826	1541	1781	0	1712	1719	0	0
Q Serve(g_s), s	0.6	27.8	5.9	11.6	39.8	0.3	20.8	0.0	26.7	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.6	27.8	5.9	11.6	39.8	0.3	20.8	0.0	26.7	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	0.34		0.31
Lane Grp Cap(c), veh/h	18	672	1027	231	896	756	528	0	508	58	0	0
V/C Ratio(X)	0.60	0.81	0.22	0.87	0.88	0.01	0.75	0.00	0.91	0.55	0.00	0.00
Avail Cap(c_a), veh/h	68	906	1224	305	1149	970	624	0	600	468	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	50.6	29.3	6.8	43.7	23.5	13.4	32.7	0.0	34.8	48.9	0.0	0.0
Incr Delay (d2), s/veh	11.3	4.3	0.1	14.9	7.5	0.0	3.4	0.0	15.0	3.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	12.5	4.0	5.8	17.7	0.1	9.3	0.0	13.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.0	33.6	6.9	58.6	30.9	13.4	36.1	0.0	49.9	51.8	0.0	0.0
LnGrp LOS	E	C	A	E	C	B	D		D	D		
Approach Vol, veh/h	785			998			860			32		
Approach Delay, s/veh	26.3			36.3			43.5			51.8		
Approach LOS	C			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	43.2		34.5	5.1	55.7		7.5				
Change Period (Y+Rc), s	4.0	* 5.3		4.0	4.0	5.3		4.0				
Max Green Setting (Gmax), s	18.0	* 51		36.0	4.0	64.7		28.0				
Max Q Clear Time (g_c+11.6	29.8			28.7	2.6	41.8		3.9				
Green Ext Time (p_c), s	0.1	4.5		1.8	0.0	8.6		0.1				

Intersection Summary

HCM 7th Control Delay, s/veh 35.9
HCM 7th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 31.3

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔	↔	↔	
Traffic Vol, veh/h	80	30	10	90	10	470	10	230	70	290	150	30
Future Vol, veh/h	80	30	10	90	10	470	10	230	70	290	150	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	32	11	95	11	495	11	242	74	305	158	32
Number of Lanes	0	1	0	0	1	1	0	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay, s/veh	6.2	46.9	19.3	24
HCM LOS	C	E	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	0%	67%	90%	0%	100%	0%
Vol Thru, %	96%	0%	25%	10%	0%	0%	83%
Vol Right, %	0%	100%	8%	0%	100%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	70	120	100	470	290	180
LT Vol	10	0	80	90	0	290	0
Through Vol	230	0	30	10	0	0	150
RT Vol	0	70	10	0	470	0	30
Lane Flow Rate	253	74	126	105	495	305	189
Geometry Grp	5	5	4b	5	5	5	5
Degree of Util (X)	0.575	0.152	0.318	0.236	0.949	0.708	0.406
Departure Headway (Hd)	8.193	7.446	9.052	8.087	6.908	8.352	7.715
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	437	478	399	442	524	430	464
Service Time	5.991	5.243	7.052	5.867	4.686	6.147	5.509
HCM Lane V/C Ratio	0.579	0.155	0.316	0.238	0.945	0.709	0.407
HCM Control Delay, s/veh	21.6	11.6	16.2	13.4	54	29.2	15.7
HCM Lane LOS	C	B	C	B	F	D	C
HCM 95th-tile Q	3.5	0.5	1.3	0.9	12	5.4	1.9

HCM 7th Signalized Intersection Summary 33: Clairemont Dr. & Iroquois Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗	↖	↖	↗	↖
Traffic Volume (veh/h)	50	20	90	160	10	210	30	600	130	150	740	40
Future Volume (veh/h)	50	20	90	160	10	210	30	600	130	150	740	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No		No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	53	21	86	168	11	199	32	632	110	158	779	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	4	4	4
Cap, veh/h	192	95	237	268	31	232	254	980	798	330	988	805
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	374	328	815	611	106	796	653	1826	1487	703	1841	1501
Grp Volume(v), veh/h	160	0	0	378	0	0	32	632	110	158	779	34
Grp Sat Flow(s),veh/h/ln	1516	0	0	1513	0	0	653	1826	1487	703	1841	1501
Q Serve(g_s), s	0.0	0.0	0.0	8.9	0.0	0.0	2.4	14.1	2.1	11.8	19.6	0.6
Cycle Q Clear(g_c), s	4.4	0.0	0.0	13.3	0.0	0.0	21.9	14.1	2.1	25.9	19.6	0.6
Prop In Lane	0.33		0.54	0.44		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	525	0	0	531	0	0	254	980	798	330	988	805
V/C Ratio(X)	0.30	0.00	0.00	0.71	0.00	0.00	0.13	0.64	0.14	0.48	0.79	0.04
Avail Cap(c_a), veh/h	605	0	0	611	0	0	301	1114	907	381	1123	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	0.0	18.9	0.0	0.0	19.5	9.4	6.7	18.6	10.7	6.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	3.8	0.0	0.0	0.1	0.7	0.0	0.4	2.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	4.7	0.0	0.0	0.3	4.3	0.5	1.7	6.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.4	0.0	0.0	22.6	0.0	0.0	19.6	10.1	6.7	19.0	13.6	6.3
LnGrp LOS	B			C			B	B	A	B	B	A
Approach Vol, veh/h	160		378				774			971		
Approach Delay, s/veh	16.4		22.6				10.0			14.2		
Approach LOS	B		C				B			B		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	35.8		21.8		35.8		21.8					
Change Period (Y+Rc), s	4.9		5.0		4.9		5.0					
Max Green Setting (Gmax), s	35.1		20.0		35.1		20.0					
Max Q Clear Time (g_c+I1), s	23.9		6.4		27.9		15.3					
Green Ext Time (p_c), s	2.5		1.0		2.8		1.3					
Intersection Summary												
HCM 7th Control Delay, s/veh			14.4									
HCM 7th LOS			B									

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑		Y	↑↑
Traffic Vol, veh/h	50	60	1230	110	40	750
Future Vol, veh/h	50	60	1230	110	40	750
Conflicting Peds, #/hr	1	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	210	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	5	5	5	5
Mvmt Flow	52	63	1281	115	42	781
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1814	698	0	0	1396	0
Stage 1	1339	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	70	383	-	-	471	-
Stage 1	209	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	63	383	-	-	471	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	209	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	34.27	0	0.68			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	234	471	-	
HCM Lane V/C Ratio	-	-	0.489	0.089	-	
HCM Ctrl Dly (s/v)	-	-	34.3	13.4	-	
HCM Lane LOS	-	-	D	B	-	
HCM 95th %tile Q(veh)	-	-	2.5	0.3	-	

HCM 7th Signalized Intersection Summary
35: Morena Blvd. & Ashton St.

Proposed Plan Conditions
AM Peak Hour

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	210	180	1160	170	180	620	
Future Volume (veh/h)	210	180	1160	170	180	620	
Initial Q (Qb), veh	0	0	0	0	0	0	
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826	
Adj Flow Rate, veh/h	216	167	1196	157	186	639	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	5	5	5	5	
Cap, veh/h	240	186	1337	175	222	2140	
Arrive On Green	0.25	0.25	0.43	0.43	0.13	0.62	
Sat Flow, veh/h	950	735	3176	404	1739	3561	
Grp Volume(v), veh/h	384	0	671	682	186	639	
Grp Sat Flow(s),veh/h/ln	1690	0	1735	1753	1739	1735	
Q Serve(g_s), s	17.4	0.0	28.2	28.5	8.3	6.8	
Cycle Q Clear(g_c), s	17.4	0.0	28.2	28.5	8.3	6.8	
Prop In Lane	0.56	0.43		0.23	1.00		
Lane Grp Cap(c), veh/h	427	0	752	760	222	2140	
V/C Ratio(X)	0.90	0.00	0.89	0.90	0.84	0.30	
Avail Cap(c_a), veh/h	644	0	768	776	227	2177	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	28.5	0.0	20.7	20.8	33.7	7.1	
Incr Delay (d2), s/veh	8.2	0.0	13.0	13.5	21.7	0.1	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	7.7	0.0	13.2	13.5	4.7	2.2	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	36.7	0.0	33.7	34.3	55.4	7.2	
LnGrp LOS	D		C	C	E	A	
Approach Vol, veh/h	384		1353			825	
Approach Delay, s/veh	36.7		34.0			18.1	
Approach LOS	D		C			B	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.5	39.7				54.1	24.9
Change Period (Y+Rc), s	4.4	* 5.4				5.4	4.9
Max Green Setting (Gmax), s	10.3	* 35				49.6	30.1
Max Q Clear Time (g_c+l1), s	10.3	30.5				8.8	19.4
Green Ext Time (p_c), s	0.0	3.7				7.3	0.5

Intersection Summary

HCM 7th Control Delay, s/veh	29.3
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 36: W Morena Blvd. & Morena Blvd.

Proposed Plan Conditions
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↰	↰	↰	↰
Traffic Volume (veh/h)	140	540	790	110	270	560
Future Volume (veh/h)	140	540	790	110	270	560
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1870	1826	1826
Adj Flow Rate, veh/h	147	506	832	104	284	589
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	2	2	5	5
Cap, veh/h	545	679	1112	139	216	1865
Arrive On Green	0.31	0.31	0.35	0.35	0.12	0.54
Sat Flow, veh/h	1753	1560	3272	397	1739	3561
Grp Volume(v), veh/h	147	506	465	471	284	589
Grp Sat Flow(s), veh/h/ln	1753	1560	1777	1799	1739	1735
Q Serve(g_s), s	4.4	18.8	16.0	16.0	8.6	6.5
Cycle Q Clear(g_c), s	4.4	18.8	16.0	16.0	8.6	6.5
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	545	679	621	629	216	1865
V/C Ratio(X)	0.27	0.75	0.75	0.75	1.31	0.32
Avail Cap(c_a), veh/h	658	780	786	795	216	2180
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	16.4	19.8	19.8	30.3	8.9
Incr Delay (d2), s/veh	0.1	2.7	3.6	3.5	170.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.5	6.7	6.8	13.7	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.0	19.0	23.4	23.4	200.7	9.0
LnGrp LOS	B	B	C	C	F	A
Approach Vol, veh/h	653		936		873	
Approach Delay, s/veh	18.8		23.4		71.4	
Approach LOS	B		C		E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	3.0	29.8			42.8	26.4
Change Period (Y+Rc), s	4.4	* 5.6			5.6	4.9
Max Green Setting (Gmax), s	3.6	* 31			43.5	26.0
Max Q Clear Time (g_c+110), s	11.0	18.0			8.5	20.8
Green Ext Time (p_c), s	0.0	6.2			4.7	0.7

Intersection Summary

HCM 7th Control Delay, s/veh 39.2
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 37: Knoxville St. & Morena Blvd.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Traffic Volume (veh/h)	70	170	50	100	470	350	80	20	130	490	80	90
Future Volume (veh/h)	70	170	50	100	470	350	80	20	130	490	80	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No		No				No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	179	48	105	495	294	84	21	123	516	84	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	2	2	2	2	2	2
Cap, veh/h	128	274	60	173	637	728	262	92	307	469	57	59
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	91	574	126	197	1337	1529	500	271	904	1031	168	174
Grp Volume(v), veh/h	301	0	0	600	0	294	228	0	0	687	0	0
Grp Sat Flow(s),veh/h/ln	792	0	0	1534	0	1529	1675	0	0	1373	0	0
Q Serve(g_s), s	3.7	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	12.6	0.0	0.0
Cycle Q Clear(g_c), s	21.6	0.0	0.0	17.9	0.0	6.6	5.5	0.0	0.0	18.1	0.0	0.0
Prop In Lane	0.25		0.16	0.17		1.00	0.37		0.54	0.75		0.13
Lane Grp Cap(c), veh/h	461	0	0	810	0	728	662	0	0	585	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.74	0.00	0.40	0.34	0.00	0.00	1.17	0.00	0.00
Avail Cap(c_a), veh/h	1334	0	0	1964	0	1782	662	0	0	585	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.5	0.0	0.0	11.5	0.0	9.0	13.4	0.0	0.0	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.5	0.0	0.1	0.5	0.0	0.0	95.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	4.7	0.0	1.8	1.9	0.0	0.0	22.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.1	0.0	0.0	12.0	0.0	9.2	13.9	0.0	0.0	115.0	0.0	0.0
LnGrp LOS	B			B		A	B			F		
Approach Vol, veh/h	301				894				228		687	
Approach Delay, s/veh	11.1				11.1				13.9		115.0	
Approach LOS	B				B				B		F	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	30.3		23.0		30.3		23.0					
Change Period (Y+Rc), s	4.9		4.9		4.9		4.9					
Max Green Setting (Gmax), s	62.1		18.1		62.1		18.1					
Max Q Clear Time (g_c+I1), s	23.6		20.1		19.9		7.5					
Green Ext Time (p_c), s	1.7		0.0		3.5		1.4					
Intersection Summary												
HCM 7th Control Delay, s/veh			45.2									
HCM 7th LOS			D									

HCM 7th Signalized Intersection Summary 38: Tecolote Rd. & Morena Blvd.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+	+	+	+		+	+		+	+	
Traffic Volume (veh/h)	50	240	580	440	280	60	620	130	450	50	80	80
Future Volume (veh/h)	50	240	580	440	280	60	620	130	450	50	80	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	367	382	270	565	52	653	137	379	53	84	76
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	66	455	434	369	699	64	822	445	704	142	148	120
Arrive On Green	0.28	0.28	0.28	0.21	0.21	0.21	0.24	0.24	0.24	0.08	0.08	0.08
Sat Flow, veh/h	233	1611	1535	1753	3322	305	3456	1870	1555	1781	1853	1498
Grp Volume(v), veh/h	420	0	382	270	313	304	653	137	379	53	80	80
Grp Sat Flow(s),veh/h/ln	1844	0	1535	1753	1841	1786	1728	1870	1555	1781	1777	1574
Q Serve(g_s), s	21.9	0.0	24.6	14.9	16.7	16.8	18.4	6.2	18.4	2.9	4.5	5.1
Cycle Q Clear(g_c), s	21.9	0.0	24.6	14.9	16.7	16.8	18.4	6.2	18.4	2.9	4.5	5.1
Prop In Lane	0.13		1.00	1.00		0.17	1.00		1.00	1.00		0.95
Lane Grp Cap(c), veh/h	521	0	434	369	388	376	822	445	704	142	142	126
V/C Ratio(X)	0.81	0.00	0.88	0.73	0.81	0.81	0.79	0.31	0.54	0.37	0.56	0.63
Avail Cap(c_a), veh/h	554	0	461	457	480	465	1011	547	788	292	292	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	0.0	35.5	38.2	38.9	38.9	37.1	32.5	20.8	45.2	45.9	46.2
Incr Delay (d2), s/veh	9.6	0.0	18.6	4.6	8.0	8.5	3.6	0.4	0.6	1.6	3.5	5.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	11.3	6.8	8.3	8.2	8.1	2.9	9.7	1.4	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.1	0.0	54.1	42.8	46.9	47.4	40.7	32.9	21.5	46.8	49.4	51.4
LnGrp LOS	D		D	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h	802			887			1169			213		
Approach Delay, s/veh	48.9			45.8			33.6			49.5		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.5			34.2			13.2			26.7		
Change Period (Y+Rc), s	4.9			4.9			4.9			4.9		
Max Green Setting (Gmax), s	30.3			31.1			17.0			27.0		
Max Q Clear Time (g_c+l1), s	20.4			26.6			7.1			18.8		
Green Ext Time (p_c), s	3.6			2.6			0.7			3.0		

Intersection Summary

HCM 7th Control Delay, s/veh	42.2
HCM 7th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 7th Signalized Intersection Summary
39: Genesee Ave. & Marlesta Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	180	240	990	180	400	730
Future Volume (veh/h)	180	240	990	180	400	730
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1811
Adj Flow Rate, veh/h	189	202	1042	151	421	768
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	6	6
Cap, veh/h	217	568	993	1035	408	1446
Arrive On Green	0.12	0.12	0.53	0.53	0.24	0.80
Sat Flow, veh/h	1781	1585	1870	1585	1725	1811
Grp Volume(v), veh/h	189	202	1042	151	421	768
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1725	1811
Q Serve(g_s), s	14.8	13.3	75.4	5.2	33.6	21.0
Cycle Q Clear(g_c), s	14.8	13.3	75.4	5.2	33.6	21.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	217	568	993	1035	408	1446
V/C Ratio(X)	0.87	0.36	1.05	0.15	1.03	0.53
Avail Cap(c_a), veh/h	326	665	993	1035	408	1446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	33.5	33.3	9.5	54.2	5.0
Incr Delay (d2), s/veh	10.8	0.1	42.3	0.1	52.9	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	5.2	43.3	2.5	20.2	6.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	72.0	33.6	75.6	9.6	107.0	5.4
LnGrp LOS	E	C	F	A	F	A
Approach Vol, veh/h	391		1193			1189
Approach Delay, s/veh	52.2		67.2			41.4
Approach LOS	D		E			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	81.8			119.8	22.2
Change Period (Y+Rc), s	4.4	* 6.4			6.4	4.9
Max Green Setting (Gmax), s	33.6	* 75			112.7	26.0
Max Q Clear Time (g_c+Q_c), s	33.6	77.4			23.0	16.8
Green Ext Time (p_c), s	0.0	0.0			8.0	0.5

Intersection Summary

HCM 7th Control Delay, s/veh 54.0
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 40: Linda Vista Rd. & Genesee Ave.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	530	290	540	520	340	100	620	160	270	790	380
Future Volume (veh/h)	170	530	290	540	520	340	100	620	160	270	790	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.91	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	179	558	244	568	547	286	105	653	134	284	832	360
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	736	393	573	915	405	144	1343	545	305	1020	439
Arrive On Green	0.12	0.21	0.21	0.17	0.26	0.26	0.04	0.38	0.38	0.09	0.42	0.42
Sat Flow, veh/h	1781	3554	1580	3456	3554	1574	3456	3554	1443	3456	2402	1035
Grp Volume(v), veh/h	179	558	244	568	547	286	105	653	134	284	615	577
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1728	1777	1574	1728	1777	1443	1728	1777	1660
Q Serve(g_s), s	11.9	17.7	16.5	19.7	16.2	19.8	3.6	16.8	7.6	9.8	36.5	36.8
Cycle Q Clear(g_c), s	11.9	17.7	16.5	19.7	16.2	19.8	3.6	16.8	7.6	9.8	36.5	36.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	206	736	393	573	915	405	144	1343	545	305	754	705
V/C Ratio(X)	0.87	0.76	0.62	0.99	0.60	0.71	0.73	0.49	0.25	0.93	0.81	0.82
Avail Cap(c_a), veh/h	239	948	487	573	1060	470	144	1343	545	305	754	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.46	0.46	0.46	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	44.7	40.0	50.0	39.1	40.4	56.8	28.4	25.6	54.3	30.4	30.5
Incr Delay (d2), s/veh	22.6	3.3	2.4	23.3	0.5	2.4	15.0	1.3	1.1	33.3	9.4	10.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	7.9	6.7	10.2	7.0	7.9	1.9	7.4	2.8	5.7	17.3	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.8	48.1	42.5	73.2	39.6	42.9	71.9	29.7	26.7	87.6	39.8	40.7
LnGrp LOS	E	D	D	E	D	D	E	C	C	F	D	D
Approach Vol, veh/h	981			1401			892			1476		
Approach Delay, s/veh	51.6			53.9			34.2			49.4		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.3	30.2	9.4	56.1	18.3	36.2	15.0	50.5				
Change Period (Y+Rc), s	4.4	5.3	4.4	5.2	4.4	5.3	4.4	* 5.2				
Max Green Setting (Gmax), s	19.9	32.0	5.0	43.8	16.1	35.8	10.6	* 39				
Max Q Clear Time (g_c+Y), s	21.7	19.7	5.6	38.8	13.9	21.8	11.8	18.8				
Green Ext Time (p_c), s	0.0	4.9	0.0	3.7	0.1	5.9	0.0	8.9				
Intersection Summary												
HCM 7th Control Delay, s/veh	48.3											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary
41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	620	540	0	800	220	0	0	0	960	0	650
Future Volume (veh/h)	0	620	540	0	800	220	0	0	0	960	0	650
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	646	0	0	833	0				1192	0	412
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1156		0	1156					1432	0	637
Arrive On Green	0.00	0.33	0.00	0.00	0.33	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	3647	1585	0	3741	0				3563	0	1585
Grp Volume(v), veh/h	0	646	0	0	833	0				1192	0	412
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	6.0	0.0	0.0	8.3	0.0				12.0	0.0	8.4
Cycle Q Clear(g_c), s	0.0	6.0	0.0	0.0	8.3	0.0				12.0	0.0	8.4
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1156		0	1156					1432	0	637
V/C Ratio(X)	0.00	0.56		0.00	0.72					0.83	0.00	0.65
Avail Cap(c_a), veh/h	0	1769		0	1769					2157	0	960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.1	0.0	0.0	11.9	0.0				10.7	0.0	9.7
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0				1.1	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	0.0	0.0	2.3	0.0				3.6	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	0.0	0.0	12.2	0.0				11.8	0.0	10.1
LnGrp LOS	B			B						B		
Approach Vol, veh/h	646			833						1604		
Approach Delay, s/veh	11.3			12.2						11.4		
Approach LOS	B			B						B		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	18.8			21.2			18.8					
Change Period (Y+Rc), s	5.8			5.1			5.8					
Max Green Setting (Gmax), s	19.9			24.2			19.9					
Max Q Clear Time (g_c+I1), s	8.0			14.0			10.3					
Green Ext Time (p_c), s	2.2			2.0			2.7					

Intersection Summary

HCM 7th Control Delay, s/veh	11.6
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary 42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	→	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	550	1470	350	60	240	330	270	230	40	0	1	510
Future Volume (veh/h)	550	1470	350	60	240	330	270	230	40	0	1	510
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	579	1547	340	63	210	281	284	242	38	0	1	376
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	4	4	2	2	2	0	2	2
Cap, veh/h	637	1564	333	182	839	1413	326	289	45	0	43	579
Arrive On Green	0.18	0.54	0.54	0.10	0.46	0.46	0.18	0.18	0.18	0.00	0.02	0.02
Sat Flow, veh/h	3456	2915	620	1753	1841	3099	1781	1578	248	0	1870	2790
Grp Volume(v), veh/h	579	923	964	63	210	281	284	0	280	0	1	376
Grp Sat Flow(s),veh/h/ln	1728	1777	1759	1753	1841	1550	1781	0	1826	0	1870	1395
Q Serve(g_s), s	21.2	64.6	69.2	4.3	9.0	7.0	20.0	0.0	19.1	0.0	0.1	3.0
Cycle Q Clear(g_c), s	21.2	64.6	69.2	4.3	9.0	7.0	20.0	0.0	19.1	0.0	0.1	3.0
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.14	0.00		1.00
Lane Grp Cap(c), veh/h	637	953	943	182	839	1413	326	0	334	0	43	579
V/C Ratio(X)	0.91	0.97	1.02	0.35	0.25	0.20	0.87	0.00	0.84	0.00	0.02	0.65
Avail Cap(c_a), veh/h	908	953	943	204	839	1413	525	0	538	0	43	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	28.9	29.9	53.7	21.5	21.0	51.2	0.0	50.9	0.0	61.6	46.8
Incr Delay (d2), s/veh	7.9	22.4	35.0	0.4	0.7	0.3	5.4	0.0	3.2	0.0	0.2	2.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	31.4	36.2	1.9	4.0	2.6	9.4	0.0	9.0	0.0	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.4	51.3	65.0	54.1	22.3	21.3	56.6	0.0	54.0	0.0	61.8	49.4
LnGrp LOS	E	D	F	D	C	C	E		D		E	D
Approach Vol, veh/h	2466			554			564			377		
Approach Delay, s/veh	58.5			25.4			55.3			49.4		
Approach LOS	E			C			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.1	75.7		6.5	28.5	65.3		28.7				
Change Period (Y+Rc), s	4.7	6.5		3.5	4.7	* 6.5		5.1				
Max Green Setting (Gmax), s	15.0	69.2		3.0	33.9	* 51		38.0				
Max Q Clear Time (g_c+I), s	10.3	71.2		5.0	23.2	11.0		22.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.6	1.3		1.6				

Intersection Summary

HCM 7th Control Delay, s/veh	52.6
HCM 7th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 43: Linda Vista Rd. & Mesa College Dr.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	440	120	270	860	240	220	390	200	290	340	160
Future Volume (veh/h)	130	440	120	270	860	240	220	390	200	290	340	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.94	1.00		0.91	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	137	463	113	284	905	202	232	411	169	305	358	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	154	954	230	647	2191	918	299	590	453	308	612	477
Arrive On Green	0.09	0.34	0.34	0.37	0.63	0.63	0.09	0.32	0.32	0.09	0.33	0.33
Sat Flow, veh/h	1781	2775	669	1753	3497	1466	3428	1856	1424	3456	1870	1456
Grp Volume(v), veh/h	137	295	281	284	905	202	232	411	169	305	358	134
Grp Sat Flow(s),veh/h/ln	1781	1777	1668	1753	1749	1466	1714	1856	1424	1728	1870	1456
Q Serve(g_s), s	8.4	14.3	14.7	13.4	14.3	8.6	7.3	21.3	7.9	9.7	17.5	7.5
Cycle Q Clear(g_c), s	8.4	14.3	14.7	13.4	14.3	8.6	7.3	21.3	7.9	9.7	17.5	7.5
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	611	573	647	2191	918	299	590	453	308	612	477
V/C Ratio(X)	0.89	0.48	0.49	0.44	0.41	0.22	0.78	0.70	0.37	0.99	0.58	0.28
Avail Cap(c_a), veh/h	154	625	587	647	2191	918	611	590	453	308	612	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	28.4	28.5	26.1	10.4	15.4	49.2	32.8	17.8	50.1	30.8	27.4
Incr Delay (d2), s/veh	41.3	0.5	0.6	0.2	0.6	0.6	1.6	6.7	2.3	48.6	4.1	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	6.1	5.9	5.6	5.4	3.0	3.2	10.6	2.9	6.2	8.5	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	91.1	28.9	29.1	26.3	10.9	16.0	50.8	39.5	20.2	98.6	34.8	28.9
LnGrp LOS	F	C	C	C	B	B	D	D	C	F	C	C
Approach Vol, veh/h	713		1391				812		797			
Approach Delay, s/veh	40.9		14.8				38.7		58.2			
Approach LOS	D		B				D		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	40.2	46.0	43.6	14.0	41.4	13.9	75.7				
Change Period (Y+Rc), s	5.4	* 5.2	4.4	* 5.8	4.4	5.4	4.4	5.8				
Max Green Setting (Gmax), s	9.8	* 35	7.6	* 39	19.6	25.0	9.5	35.9				
Max Q Clear Time (g_c+I1), s	11.3	23.3	15.4	16.7	9.3	19.5	10.4	16.3				
Green Ext Time (p_c), s	0.0	3.5	0.0	3.4	0.3	2.5	0.0	15.8				

Intersection Summary

HCM 7th Control Delay, s/veh 34.4
HCM 7th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
44: Linda Vista Rd. & Kearny High School Dwy./Dwy.

Proposed Plan Conditions
AM Peak Hour

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Vol, veh/h	5	0	20	5	0	5	90	800	20	10	700	30
Future Vol, veh/h	5	0	20	5	0	5	90	800	20	10	700	30
Conflicting Peds, #/hr	3	0	0	0	0	3	14	0	3	3	0	14
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	300	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	5	0	21	5	0	5	95	842	21	11	737	32

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	1401	1843	398	1435	1849	438	782	0	0	866	0	0
Stage 1	788	788	-	1045	1045	-	-	-	-	-	-	-
Stage 2	614	1056	-	389	803	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	100	74	*885	*94	74	567	1036	-	-	767	-	-
Stage 1	567	548	-	*245	304	-	-	-	-	-	-	-
Stage 2	446	300	-	*834	538	-	-	-	-	-	-	-
Platoon blocked, %			0			0		-	-		-	-
Mov Cap-1 Maneuver	87	65	*873	*82	65	564	1022	-	-	765	-	-
Mov Cap-2 Maneuver	247	186	-	*179	181	-	-	-	-	-	-	-
Stage 1	552	533	-	*221	275	-	-	-	-	-	-	-
Stage 2	400	272	-	*804	523	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.51	18.79	0.88	0.13
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1022	-	-	579	272	765	-
HCM Lane V/C Ratio	0.093	-	-	0.045	0.039	0.014	-
HCM Ctrl Dly (s/v)	8.9	-	-	11.5	18.8	9.8	-
HCM Lane LOS	A	-	-	B	C	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	0.1	0	-

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th Signalized Intersection Summary
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↔↔	↔
Traffic Volume (veh/h)	570	0	0	1160	460	620
Future Volume (veh/h)	570	0	0	1160	460	620
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1870	1870
Adj Flow Rate, veh/h	600	0	0	1221	628	319
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	1653	0	0	1653	958	426
Arrive On Green	0.47	0.00	0.00	0.47	0.27	0.27
Sat Flow, veh/h	3741	0	0	3741	3563	1585
Grp Volume(v), veh/h	600	0	0	1221	628	319
Grp Sat Flow(s), veh/h/ln	1777	0	0	1777	1781	1585
Q Serve(g_s), s	4.2	0.0	0.0	10.7	6.0	7.1
Cycle Q Clear(g_c), s	4.2	0.0	0.0	10.7	6.0	7.1
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1653	0	0	1653	958	426
V/C Ratio(X)	0.36	0.00	0.00	0.74	0.66	0.75
Avail Cap(c_a), veh/h	2308	0	0	2308	1384	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.6	0.0	0.0	8.4	12.4	12.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.3	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.7	1.9	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	6.6	0.0	0.0	8.8	12.7	14.2
LnGrp LOS	A			A	B	B
Approach Vol, veh/h	600			1221	947	
Approach Delay, s/veh	6.6			8.8	13.2	
Approach LOS	A			A	B	
Timer - Assigned Phs	2			4	6	
Phs Duration (G+Y+Rc), s	22.9			15.4	22.9	
Change Period (Y+Rc), s	5.1			5.1	5.1	
Max Green Setting (Gmax), s	24.9			14.9	24.9	
Max Q Clear Time (g_c+l1), s	6.2			9.1	12.7	
Green Ext Time (p_c), s	2.7			1.2	5.1	
Intersection Summary						
HCM 7th Control Delay, s/veh			9.8			
HCM 7th LOS			A			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM 7th Signalized Intersection Summary 47: Mission Bay Dr. & Garnet Ave.

Proposed Plan Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	820	1000	580	200	800	300	450	450	300	300	290	480
Future Volume (veh/h)	820	1000	580	200	800	300	450	450	300	300	290	480
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.92	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	854	1042	483	208	833	263	469	469	245	312	302	418
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	912	1340	810	224	858	588	489	832	542	466	420	1356
Arrive On Green	0.26	0.38	0.38	0.13	0.24	0.24	0.14	0.23	0.23	0.13	0.22	0.22
Sat Flow, veh/h	3456	3554	1554	1767	3526	1547	3456	3554	1456	3456	1870	2759
Grp Volume(v), veh/h	854	1042	483	208	833	263	469	469	245	312	302	418
Grp Sat Flow(s),veh/h/ln	1728	1777	1554	1767	1763	1547	1728	1777	1456	1728	1870	1379
Q Serve(g_s), s	36.2	38.8	10.7	17.5	35.1	9.0	20.2	17.5	0.0	12.9	22.4	7.4
Cycle Q Clear(g_c), s	36.2	38.8	10.7	17.5	35.1	9.0	20.2	17.5	0.0	12.9	22.4	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	912	1340	810	224	858	588	489	832	542	466	420	1356
V/C Ratio(X)	0.94	0.78	0.60	0.93	0.97	0.45	0.96	0.56	0.45	0.67	0.72	0.31
Avail Cap(c_a), veh/h	1087	1684	961	224	858	588	489	832	542	466	420	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.61	0.61	0.61	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	41.2	25.0	64.8	56.2	14.2	64.0	50.7	36.2	61.7	53.8	9.3
Incr Delay (d2), s/veh	12.3	2.2	1.1	28.8	17.6	0.5	30.3	2.8	2.7	3.0	10.1	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	16.9	11.7	9.5	17.3	3.5	11.0	8.2	7.1	5.9	11.8	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.3	43.4	26.1	93.6	73.8	14.7	94.3	53.5	38.9	64.7	63.9	9.9
LnGrp LOS	E	D	C	F	E	B	F	D	D	E	E	A
Approach Vol, veh/h	2379			1304			1183			1032		
Approach Delay, s/veh	48.1			65.0			66.6			42.3		
Approach LOS	D			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.6	39.0	44.0	41.4	24.6	40.0	23.9	61.4				
Change Period (Y+Rc), s	4.4	5.3	4.4	4.9	4.4	4.9	4.9	* 4.9				
Max Green Setting (Gmax), s	13.6	33.7	47.2	36.5	12.6	35.1	12.6	* 71				
Max Q Clear Time (g_c+Y), s	22.2	24.4	38.2	37.1	14.9	19.5	19.5	40.8				
Green Ext Time (p_c), s	0.0	2.8	1.3	0.0	0.0	5.7	0.0	15.8				
Intersection Summary												
HCM 7th Control Delay, s/veh	54.5											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 48: Morena Blvd. SB Ramps

Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	160	320	860	300	400
Future Volume (veh/h)	110	160	320	860	300	400
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1949	1949
Adj Flow Rate, veh/h	116	168	337	905	316	421
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	230	568	408	1237	639	755
Arrive On Green	0.13	0.13	0.23	0.66	0.33	0.33
Sat Flow, veh/h	1781	1585	1781	1870	1949	1651
Grp Volume(v), veh/h	116	168	337	905	316	421
Grp Sat Flow(s), veh/h/ln	1781	1585	1781	1870	1949	1651
Q Serve(g_s), s	2.3	0.0	6.9	12.1	5.0	7.1
Cycle Q Clear(g_c), s	2.3	0.0	6.9	12.1	5.0	7.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	230	568	408	1237	639	755
V/C Ratio(X)	0.50	0.30	0.83	0.73	0.49	0.56
Avail Cap(c_a), veh/h	1351	1565	466	2103	1478	1466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	8.8	14.0	4.2	10.3	7.6
Incr Delay (d2), s/veh	1.7	0.3	10.4	0.8	0.6	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.4	1.5	1.7	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	17.2	9.1	24.4	5.1	10.9	8.2
LnGrp LOS	B	A	C	A	B	A
Approach Vol, veh/h	284			1242	737	
Approach Delay, s/veh	12.4			10.3	9.4	
Approach LOS	B			B	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	29.3			8.9	12.8	16.5
Change Period (Y+Rc), s	4.0			4.0	4.0	4.0
Max Green Setting (Gmax), s	43.0			29.0	10.0	29.0
Max Q Clear Time (g_c+l1), s	14.1			4.3	8.9	9.1
Green Ext Time (p_c), s	8.3			0.9	0.1	3.4
Intersection Summary						
HCM 7th Control Delay, s/veh			10.3			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary
49: Morena Blvd. SB On Ramp/Morena Blvd. SB Ramps

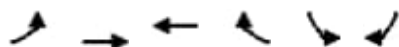
Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↰	↱	↰	↱	↱	↰	↱	
Traffic Volume (veh/h)	30	10	10	140	80	280	10	870	690	70	340	50
Future Volume (veh/h)	30	10	10	140	80	280	10	870	690	70	340	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1826	1826	1826	1870
Adj Flow Rate, veh/h	32	11	10	147	84	236	11	916	653	74	358	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	5	5	2
Cap, veh/h	175	86	78	228	130	389	23	1736	759	94	1662	221
Arrive On Green	0.10	0.10	0.10	0.20	0.20	0.20	0.01	0.50	0.50	0.05	0.54	0.54
Sat Flow, veh/h	1781	873	794	1154	659	1537	1781	3469	1516	1739	3070	408
Grp Volume(v), veh/h	32	0	21	231	0	236	11	916	653	74	201	205
Grp Sat Flow(s), veh/h/ln	1781	0	1667	1813	0	1537	1781	1735	1516	1739	1735	1743
Q Serve(g_s), s	1.8	0.0	1.2	12.5	0.0	14.5	0.7	19.1	40.4	4.5	6.4	6.5
Cycle Q Clear(g_c), s	1.8	0.0	1.2	12.5	0.0	14.5	0.7	19.1	40.4	4.5	6.4	6.5
Prop In Lane	1.00		0.48	0.64		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	175	0	164	358	0	389	23	1736	759	94	939	944
V/C Ratio(X)	0.18	0.00	0.13	0.65	0.00	0.61	0.47	0.53	0.86	0.79	0.21	0.22
Avail Cap(c_a), veh/h	484	0	452	492	0	503	83	2241	980	114	1153	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	44.0	39.4	0.0	35.3	52.3	18.1	23.4	49.9	12.7	12.7
Incr Delay (d2), s/veh	0.5	0.0	0.3	2.0	0.0	1.5	14.2	0.3	6.4	25.2	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.5	5.7	0.0	5.5	0.4	7.5	15.0	2.6	2.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.7	0.0	44.3	41.4	0.0	36.9	66.6	18.4	29.8	75.2	12.8	12.8
LnGrp LOS	D		D	D		D	E	B	C	E	B	B
Approach Vol, veh/h	53			467			1580			480		
Approach Delay, s/veh	44.6			39.1			23.4			22.4		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	57.4			14.5	5.4	61.8		25.1				
Change Period (Y+Rc), s	4.0			4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	69.0			29.0	5.0	71.0		29.0				
Max Q Clear Time (g_c+I), s	42.4			3.8	2.7	8.5		16.5				
Green Ext Time (p_c), s	0.0	11.1		0.1	0.0	2.7		1.8				
Intersection Summary												
HCM 7th Control Delay, s/veh	26.5											
HCM 7th LOS	C											

HCM 7th Signalized Intersection Summary
50: Garnet Ave./Balboa Ave. & Moraga Ave.

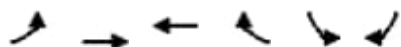
Proposed Plan Conditions
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Volume (veh/h)	500	1150	1470	180	190	380
Future Volume (veh/h)	500	1150	1470	180	190	380
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1841	1841
Adj Flow Rate, veh/h	526	1211	1547	151	200	320
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	3	4	4
Cap, veh/h	565	2383	1651	736	391	348
Arrive On Green	0.16	0.67	0.47	0.47	0.22	0.22
Sat Flow, veh/h	3456	3647	3618	1572	1753	1560
Grp Volume(v), veh/h	526	1211	1547	151	200	320
Grp Sat Flow(s), veh/h/ln	1728	1777	1763	1572	1753	1560
Q Serve(g_s), s	17.1	19.4	47.3	6.4	11.4	22.8
Cycle Q Clear(g_c), s	17.1	19.4	47.3	6.4	11.4	22.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	565	2383	1651	736	391	348
V/C Ratio(X)	0.93	0.51	0.94	0.21	0.51	0.92
Avail Cap(c_a), veh/h	565	2427	1670	745	478	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	9.4	28.7	17.8	38.7	43.2
Incr Delay (d2), s/veh	22.0	0.3	10.6	0.2	0.4	20.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	6.4	20.6	2.2	4.9	19.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	68.9	9.7	39.2	18.0	39.1	63.7
LnGrp LOS	E	A	D	B	D	E
Approach Vol, veh/h		1737	1698		520	
Approach Delay, s/veh		27.6	37.3		54.2	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		82.8		31.0	23.0	59.8
Change Period (Y+Rc), s		* 6.5		5.6	4.4	6.5
Max Green Setting (Gmax), s		* 78		31.0	18.6	53.9
Max Q Clear Time (g_c+l1), s		21.4		24.8	19.1	49.3
Green Ext Time (p_c), s		22.4		0.6	0.0	4.0
Intersection Summary						
HCM 7th Control Delay, s/veh			35.3			
HCM 7th LOS			D			
Notes						
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 7th Signalized Intersection Summary 51: Garnet Ave.

Proposed Plan Conditions
AM Peak Hour



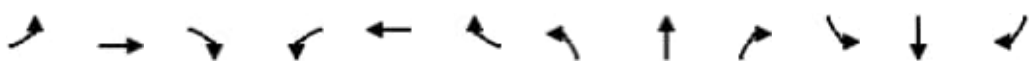
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑↑	↑	↓	↓↓
Traffic Volume (veh/h)	0	0	1580	270	1	720
Future Volume (veh/h)	0	0	1580	270	1	720
Initial Q (Qb), veh			0	0	0	0
Lane Width Adj.			1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			1663	284	1	758
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			4255	1321	0	0
Arrive On Green			0.83	0.83	0.00	0.00
Sat Flow, veh/h			5274	1585	0	
Grp Volume(v), veh/h			1663	284	0.0	
Grp Sat Flow(s),veh/h/ln			1702	1585		
Q Serve(g_s), s			2.2	1.0		
Cycle Q Clear(g_c), s			2.2	1.0		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			4255	1321		
V/C Ratio(X)			0.39	0.22		
Avail Cap(c_a), veh/h			4255	1321		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.6	0.5		
Incr Delay (d2), s/veh			0.3	0.4		
Initial Q Delay(d3), s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh			0.8	0.8		
LnGrp LOS			A	A		
Approach Vol, veh/h			1947			
Approach Delay, s/veh			0.8			
Approach LOS			A			
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						27.0
Change Period (Y+Rc), s						4.5
Max Green Setting (Gmax), s						22.5
Max Q Clear Time (g_c+l1), s						4.2
Green Ext Time (p_c), s						11.7
Intersection Summary						
HCM 7th Control Delay, s/veh			0.8			
HCM 7th LOS			A			

HCM 7th Signalized Intersection Summary

Proposed Plan Conditions

1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱	↰↱	↰↱			↰↱	↰
Traffic Volume (veh/h)	0	0	0	980	10	280	400	580	0	0	570	220
Future Volume (veh/h)	0	0	0	980	10	280	400	580	0	0	570	220
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1796	1796	0	0	1841	1841
Adj Flow Rate, veh/h				1032	11	0	421	611	0	0	600	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	7	7	0	0	4	4
Cap, veh/h				950	10		418	3508	0	0	2990	
Arrive On Green				0.54	0.54	0.00	0.04	0.34	0.00	0.00	0.86	0.00
Sat Flow, veh/h				1763	19	1585	3319	3503	0	0	3589	1560
Grp Volume(v), veh/h				1043	0	0	421	611	0	0	600	0
Grp Sat Flow(s),veh/h/ln				1782	0	1585	1659	1706	0	0	1749	1560
Q Serve(g_s), s				53.9	0.0	0.0	12.6	0.0	0.0	0.0	3.0	0.0
Cycle Q Clear(g_c), s				53.9	0.0	0.0	12.6	0.0	0.0	0.0	3.0	0.0
Prop In Lane				0.99		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				961	0		418	3508	0	0	2990	
V/C Ratio(X)				1.09	0.00		1.01	0.17	0.00	0.00	0.20	
Avail Cap(c_a), veh/h				961	0		418	3508	0	0	2990	
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.75	0.75	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.1	0.0	0.0	47.9	0.0	0.0	0.0	1.3	0.0
Incr Delay (d2), s/veh				55.2	0.0	0.0	39.8	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				35.4	0.0	0.0	7.9	0.0	0.0	0.0	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				78.2	0.0	0.0	87.7	0.1	0.0	0.0	1.4	0.0
LnGrp LOS				F			F	A			A	
Approach Vol, veh/h					1043			1032			600	
Approach Delay, s/veh					78.2			35.8			1.4	
Approach LOS					E			D			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	17.3	93.7				111.0		59.0				
Change Period (Y+Rc), s	4.7	6.2				* 6.2		5.1				
Max Green Setting (Gmax), s	12.6	17.5				* 37		53.9				
Max Q Clear Time (g_c+I1), s	14.6	5.0				2.0		55.9				
Green Ext Time (p_c), s	0.0	3.3				4.7		0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh				44.6								
HCM 7th LOS				D								
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary 2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰					↱	↱	↰	↱	↱
Traffic Volume (veh/h)	410	10	1050	0	0	0	0	570	430	220	1330	0
Future Volume (veh/h)	410	10	1050	0	0	0	0	570	430	220	1330	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1796	1796	1796	1796	0
Adj Flow Rate, veh/h	425	0	0				0	582	0	224	1357	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	7	7	7	7	0
Cap, veh/h	538	0					0	2000		176	2512	0
Arrive On Green	0.15	0.00	0.00				0.00	0.59	0.00	0.03	0.24	0.00
Sat Flow, veh/h	3563	0	1585				0	3503	1522	1711	3503	0
Grp Volume(v), veh/h	425	0	0				0	582	0	224	1357	0
Grp Sat Flow(s), veh/h/ln	1781	0	1585				0	1706	1522	1711	1706	0
Q Serve(g_s), s	11.5	0.0	0.0				0.0	8.5	0.0	10.3	34.6	0.0
Cycle Q Clear(g_c), s	11.5	0.0	0.0				0.0	8.5	0.0	10.3	34.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	538	0					0	2000		176	2512	0
V/C Ratio(X)	0.79	0.00					0.00	0.29		1.27	0.54	0.00
Avail Cap(c_a), veh/h	1813	0					0	2000		176	2512	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.12	0.12	0.00
Uniform Delay (d), s/veh	40.9	0.0	0.0				0.0	10.3	0.0	48.3	23.1	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0				0.0	0.4	0.0	127.6	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0				0.0	3.1	0.0	10.9	15.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.6	0.0	0.0				0.0	10.7	0.0	175.9	23.2	0.0
LnGrp LOS	D							B		F	C	
Approach Vol, veh/h	425						582			1581		
Approach Delay, s/veh	43.6						10.7			44.8		
Approach LOS	D						B			D		

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	79.8	20.2	15.0	64.8
Change Period (Y+Rc), s	6.2	5.1	4.7	6.2
Max Green Setting (Gmax), s	37.8	50.9	10.3	22.8
Max Q Clear Time (g_c+l1), s	36.6	13.5	12.3	10.5
Green Ext Time (p_c), s	0.9	1.6	0.0	3.1

Intersection Summary	
HCM 7th Control Delay, s/veh	37.0
HCM 7th LOS	D

Notes	
User approved volume balancing among the lanes for turning movement.	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 7th Signalized Intersection Summary 4: Genesee Ave. & SR-52 EB Ramps

Proposed Plan Conditions
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	←	↑	←	←	↑
Traffic Volume (veh/h)	310	280	630	250	580	1270
Future Volume (veh/h)	310	280	630	250	580	1270
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	326	236	663	0	611	1337
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	353	314	625		594	1308
Arrive On Green	0.20	0.20	0.34	0.00	0.34	0.72
Sat Flow, veh/h	1781	1585	1826	1547	1739	1826
Grp Volume(v), veh/h	326	236	663	0	611	1337
Grp Sat Flow(s), veh/h/ln	1781	1585	1826	1547	1739	1826
Q Serve(g_s), s	26.4	20.6	50.4	0.0	50.3	105.4
Cycle Q Clear(g_c), s	26.4	20.6	50.4	0.0	50.3	105.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	353	314	625		594	1308
V/C Ratio(X)	0.92	0.75	1.06		1.03	1.02
Avail Cap(c_a), veh/h	387	345	625		594	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	55.6	48.4	0.0	48.4	20.9
Incr Delay (d2), s/veh	26.2	8.2	53.0	0.0	44.3	30.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	9.0	31.4	0.0	28.4	48.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	84.1	63.7	101.4	0.0	92.7	51.6
LnGrp LOS	F	E	F		F	F
Approach Vol, veh/h	562		663			1948
Approach Delay, s/veh	75.6		101.4			64.5
Approach LOS	E		F			E
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	55.0	57.9		34.3		112.9
Change Period (Y+Rc), s	4.7	7.5		5.1		7.5
Max Green Setting (Gmax), s	50.3	50.4		32.0		105.4
Max Q Clear Time (g_c+5), s	52.3	52.4		28.4		107.4
Green Ext Time (p_c), s	0.0	0.0		0.7		0.0
Intersection Summary						
HCM 7th Control Delay, s/veh			74.2			
HCM 7th LOS			E			
Notes						
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 7th Signalized Intersection Summary 5: Clairemont Mesa Blvd. & Luna Ave.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	30	210	10	40	50	240	520	50	160	1450	740
Future Volume (veh/h)	400	30	210	10	40	50	240	520	50	160	1450	740
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1803	1803	1803	1803	1803	1841	1841	1800	1796	1796	1754
Adj Flow Rate, veh/h	421	32	199	11	42	48	253	547	42	168	1526	779
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	7	7	7
Cap, veh/h	370	66	410	65	226	233	199	2489	1062	180	2400	1045
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.23	1.00	1.00	0.11	0.70	0.70
Sat Flow, veh/h	1304	213	1325	103	731	755	1753	3497	1492	1711	3413	1486
Grp Volume(v), veh/h	421	0	231	101	0	0	253	547	42	168	1526	779
Grp Sat Flow(s),veh/h/ln	1304	0	1539	1589	0	0	1753	1749	1492	1711	1706	1486
Q Serve(g_s), s	22.4	0.0	14.6	0.0	0.0	0.0	13.6	0.0	0.0	11.7	28.8	39.2
Cycle Q Clear(g_c), s	37.1	0.0	14.6	14.7	0.0	0.0	13.6	0.0	0.0	11.7	28.8	39.2
Prop In Lane	1.00		0.86	0.11		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	0	476	525	0	0	199	2489	1062	180	2400	1045
V/C Ratio(X)	1.14	0.00	0.49	0.19	0.00	0.00	1.27	0.22	0.04	0.94	0.64	0.75
Avail Cap(c_a), veh/h	370	0	476	525	0	0	199	2489	1062	180	2400	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.00	0.76	1.00	0.00	0.00	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	0.0	33.7	30.5	0.0	0.0	46.4	0.0	0.0	53.3	9.6	11.1
Incr Delay (d2), s/veh	84.3	0.0	0.8	0.1	0.0	0.0	154.3	0.2	0.1	48.1	1.3	4.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.9	0.0	5.6	2.2	0.0	0.0	13.6	0.1	0.0	7.4	9.8	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	131.6	0.0	34.5	30.6	0.0	0.0	200.7	0.2	0.1	101.4	10.8	15.9
LnGrp LOS	F		C	C			F	A	A	F	B	B
Approach Vol, veh/h	652		101			842			2473			
Approach Delay, s/veh	97.2		30.6			60.4			18.6			
Approach LOS	F		C			E			B			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.0	92.5	42.0		18.0	91.5	42.0					
Change Period (Y+Rc), s	4.4	* 6.2	4.9		4.4	6.2	4.9					
Max Green Setting (Gmax), s	12.6	* 56	37.1		13.6	53.8	37.1					
Max Q Clear Time (g_c+I13), s	11.3	2.0	39.1		15.6	41.2	16.7					
Green Ext Time (p_c), s	0.0	7.2	0.0		0.0	10.4	0.3					
Intersection Summary												
HCM 7th Control Delay, s/veh	40.2											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 6: Jutland Dr. & Luna Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	180	70	620	350	50	10	10	430	30	10	10
Future Volume (veh/h)	10	180	70	620	350	50	10	10	430	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	11	189	67	653	368	48	11	11	408	32	11	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	2	2	2
Cap, veh/h	23	210	74	697	871	114	467	11	399	50	21	19
Arrive On Green	0.01	0.16	0.16	0.39	0.54	0.54	0.27	0.26	0.26	0.03	0.02	0.02
Sat Flow, veh/h	1781	1316	467	1781	1620	211	1753	41	1523	1781	897	816
Grp Volume(v), veh/h	11	0	256	653	0	416	11	0	419	32	0	21
Grp Sat Flow(s),veh/h/ln	1781	0	1783	1781	0	1832	1753	0	1564	1781	0	1713
Q Serve(g_s), s	0.7	0.0	15.9	39.7	0.0	15.3	0.5	0.0	29.5	2.0	0.0	1.4
Cycle Q Clear(g_c), s	0.7	0.0	15.9	39.7	0.0	15.3	0.5	0.0	29.5	2.0	0.0	1.4
Prop In Lane	1.00		0.26	1.00		0.12	1.00		0.97	1.00		0.48
Lane Grp Cap(c), veh/h	23	0	284	697	0	985	467	0	410	50	0	40
V/C Ratio(X)	0.48	0.00	0.90	0.94	0.00	0.42	0.02	0.00	1.02	0.64	0.00	0.52
Avail Cap(c_a), veh/h	221	0	290	1114	0	1216	467	0	410	217	0	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	46.5	33.0	0.0	15.6	30.5	0.0	41.6	54.2	0.0	54.4
Incr Delay (d2), s/veh	14.6	0.0	28.8	10.0	0.0	0.3	0.0	0.0	50.5	12.8	0.0	10.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	9.3	18.6	0.0	6.3	0.2	0.0	17.0	1.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.8	0.0	75.4	43.0	0.0	15.9	30.5	0.0	92.1	67.0	0.0	64.6
LnGrp LOS	E		E	D		B	C		F	E		E
Approach Vol, veh/h	267			1069			430			53		
Approach Delay, s/veh	75.1			32.4			90.5			66.0		
Approach LOS	E			C			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	34.0	48.6	22.4	34.5	7.1	6.0	65.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.8	29.5	70.5	18.3	17.0	26.2	14.0	74.8				
Max Q Clear Time (g_c+I4.0	14.0	31.5	41.7	17.9	2.5	3.4	2.7	17.3				
Green Ext Time (p_c), s	0.0	0.0	2.4	0.1	0.0	0.1	0.0	3.0				

Intersection Summary

HCM 7th Control Delay, s/veh 53.4
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 7th Signalized Intersection Summary
7: Morena Blvd. & Jutland Dr.

Proposed Plan Conditions
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	650	110	220	350	70	300
Future Volume (veh/h)	650	110	220	350	70	300
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1870	1870	1870
Adj Flow Rate, veh/h	684	116	232	368	74	316
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	2	2	2	2
Cap, veh/h	811	721	579	491	0	1100
Arrive On Green	0.46	0.46	0.31	0.31	0.00	0.31
Sat Flow, veh/h	1753	1560	1870	1585	0	3647
Grp Volume(v), veh/h	684	116	232	368	0	316
Grp Sat Flow(s), veh/h/ln	1753	1560	1870	1585	0	1777
Q Serve(g_s), s	13.6	1.7	3.9	8.2	0.0	2.7
Cycle Q Clear(g_c), s	13.6	1.7	3.9	8.2	0.0	2.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	811	721	579	491	0	1100
V/C Ratio(X)	0.84	0.16	0.40	0.75	0.00	0.29
Avail Cap(c_a), veh/h	1398	1244	947	803	0	2654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.4	6.2	10.7	12.3	0.0	10.3
Incr Delay (d2), s/veh	2.5	0.1	0.4	2.3	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.4	1.3	2.6	0.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.9	6.3	11.2	14.6	0.0	10.5
LnGrp LOS	B	A	B	B		B
Approach Vol, veh/h	800		600			316
Approach Delay, s/veh	11.0		13.3			10.5
Approach LOS	B		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	0.0	16.7			16.7	22.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	20.0			29.5	31.5
Max Q Clear Time (g_c+I), s	10.0	10.2			4.7	15.6
Green Ext Time (p_c), s	0.0	2.0			2.1	2.7
Intersection Summary						
HCM 7th Control Delay, s/veh			11.7			
HCM 7th LOS			B			

HCM 7th Signalized Intersection Summary 8: Moraga Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1150	480	490	630	70	170	40	320	80	30	10
Future Volume (veh/h)	40	1150	480	490	630	70	170	40	320	80	30	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1800	1870	1870	1826	1783	1783	1783	1803	1803	1803
Adj Flow Rate, veh/h	42	1211	404	516	663	59	179	42	303	84	32	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	4	4	4	2	2	2
Cap, veh/h	53	1128	479	652	2365	1023	209	45	293	229	82	22
Arrive On Green	0.06	0.65	0.65	0.73	1.00	1.00	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1753	3497	1484	1781	3554	1537	489	130	848	518	237	65
Grp Volume(v), veh/h	42	1211	404	516	663	59	524	0	0	126	0	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1484	1781	1777	1537	1467	0	0	819	0	0
Q Serve(g_s), s	2.8	38.7	25.5	22.2	0.0	0.0	28.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	38.7	25.5	22.2	0.0	0.0	41.5	0.0	0.0	13.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.34		0.58	0.67		0.08
Lane Grp Cap(c), veh/h	53	1128	479	652	2365	1023	548	0	0	333	0	0
V/C Ratio(X)	0.79	1.07	0.84	0.79	0.28	0.06	0.96	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	105	1128	479	652	2365	1023	548	0	0	333	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.68	0.68	0.68	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.0	21.3	19.0	13.2	0.0	0.0	39.6	0.0	0.0	29.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	35.1	1.8	4.2	0.2	0.1	27.7	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	14.4	5.2	5.2	0.1	0.0	19.6	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.9	56.4	20.7	17.4	0.2	0.1	67.3	0.0	0.0	29.9	0.0	0.0
LnGrp LOS	E	F	C	B	A	A	E			C		
Approach Vol, veh/h	1657		1238				524			126		
Approach Delay, s/veh	47.7		7.4				67.3			29.9		
Approach LOS	D		A				E			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	49.2	44.0		46.4	8.0	85.2		46.4				
Change Period (Y+Rc), s	5.3	* 5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	25.2	* 39		41.5	7.2	56.7		41.5				
Max Q Clear Time (g_c+2.0), s	24.2	40.7		15.3	4.8	2.0		43.5				
Green Ext Time (p_c), s	0.1	0.0		0.6	0.0	9.9		0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	35.9											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 9: Clairemont Dr & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	700	420	500	540	150	250	480	350	160	400	260
Future Volume (veh/h)	380	700	420	500	540	150	250	480	350	160	400	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1823	1823	1870	1770	1770	1870	1870	1823	1856	1856	1778
Adj Flow Rate, veh/h	400	737	398	526	568	142	260	500	292	168	421	219
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	460	850	458	1356	1762	439	286	525	1028	168	413	522
Arrive On Green	0.04	0.13	0.13	0.66	1.00	1.00	0.16	0.28	0.28	0.10	0.22	0.22
Sat Flow, veh/h	3456	2135	1149	3456	2653	661	1781	1870	1500	1767	1856	1443
Grp Volume(v), veh/h	400	597	538	526	359	351	260	500	292	168	421	219
Grp Sat Flow(s),veh/h/ln	1728	1732	1552	1728	1681	1633	1781	1870	1500	1767	1856	1443
Q Serve(g_s), s	13.8	40.6	40.8	8.4	0.0	0.0	17.2	31.5	0.0	11.4	26.7	13.8
Cycle Q Clear(g_c), s	13.8	40.6	40.8	8.4	0.0	0.0	17.2	31.5	0.0	11.4	26.7	13.8
Prop In Lane	1.00		0.74	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	460	690	618	1356	1117	1084	286	525	1028	168	413	522
V/C Ratio(X)	0.87	0.87	0.87	0.39	0.32	0.32	0.91	0.95	0.28	1.00	1.02	0.42
Avail Cap(c_a), veh/h	507	690	618	1356	1117	1084	304	528	1030	168	413	522
HCM Platoon Ratio	0.33	0.33	0.33	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.66	0.66	0.66	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.3	49.0	49.1	14.0	0.0	0.0	49.5	42.4	7.9	54.3	46.6	29.3
Incr Delay (d2), s/veh	1.4	1.5	1.7	0.0	0.5	0.5	27.5	27.5	0.2	69.6	49.1	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	19.1	17.2	2.8	0.2	0.2	9.8	18.3	2.9	8.3	17.8	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.7	50.5	50.8	14.1	0.5	0.5	77.0	69.8	8.1	123.9	95.7	30.0
LnGrp LOS	E	D	D	B	A	A	E	E	A	F	F	C
Approach Vol, veh/h	1535			1236			1052			808		
Approach Delay, s/veh	52.5			6.3			54.5			83.8		
Approach LOS	D			A			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	53.4	53.0	23.7	31.8	20.4	86.0	16.5	39.0				
Change Period (Y+Rc), s	5.1	* 5.2	4.4	5.1	4.4	5.1	5.1	* 5.3				
Max Green Setting (Gmax), s	7.6	* 48	20.5	25.0	17.6	37.9	11.4	* 34				
Max Q Clear Time (g_c+I10), s	42.8	42.8	19.2	28.7	15.8	2.0	13.4	33.5				
Green Ext Time (p_c), s	0.0	3.3	0.1	0.0	0.2	6.0	0.0	0.2				
Intersection Summary												
HCM 7th Control Delay, s/veh	46.0											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 10: Rolfe Rd. & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1000	100	170	950	210	70	30	70	180	40	190
Future Volume (veh/h)	200	1000	100	170	950	210	70	30	70	180	40	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1803	1803	1870	1803	1803	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	1053	94	179	1000	199	74	32	67	189	42	180
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	1662	148	206	1434	285	115	55	80	271	74	316
Arrive On Green	0.18	0.70	0.70	0.15	0.67	0.67	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1795	3181	284	1781	2835	563	298	227	332	1296	305	1306
Grp Volume(v), veh/h	211	567	580	179	603	596	173	0	0	189	0	222
Grp Sat Flow(s),veh/h/ln	1795	1713	1751	1781	1713	1685	857	0	0	1296	0	1611
Q Serve(g_s), s	13.8	21.6	21.7	11.8	26.0	26.2	11.1	0.0	0.0	1.0	0.0	14.5
Cycle Q Clear(g_c), s	13.8	21.6	21.7	11.8	26.0	26.2	25.7	0.0	0.0	26.7	0.0	14.5
Prop In Lane	1.00		0.16	1.00		0.33	0.43		0.39	1.00		0.81
Lane Grp Cap(c), veh/h	238	896	915	206	866	852	250	0	0	271	0	390
V/C Ratio(X)	0.89	0.63	0.63	0.87	0.70	0.70	0.69	0.00	0.00	0.70	0.00	0.57
Avail Cap(c_a), veh/h	308	896	915	276	866	852	274	0	0	293	0	418
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.44	0.59	0.59	0.59	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.6	12.0	12.0	49.9	14.0	14.0	47.1	0.0	0.0	44.9	0.0	40.0
Incr Delay (d2), s/veh	9.3	1.5	1.5	10.4	2.8	2.8	6.2	0.0	0.0	5.1	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	6.5	6.6	5.6	8.4	8.3	5.5	0.0	0.0	5.9	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.9	13.5	13.5	60.3	16.7	16.8	53.2	0.0	0.0	50.0	0.0	40.8
LnGrp LOS	E	B	B	E	B	B	D			D		D
Approach Vol, veh/h	1358			1378			173			411		
Approach Delay, s/veh	20.4			22.4			53.2			45.1		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.2	67.8		33.9	20.3	65.8		33.9				
Change Period (Y+Rc), s	4.4	5.1		4.9	4.4	* 5.1		4.9				
Max Green Setting (Gmax), s	18.6	55.9		31.1	20.6	* 54		31.1				
Max Q Clear Time (g_c+1/3), s	11.3	23.7		28.7	15.8	28.2		27.7				
Green Ext Time (p_c), s	0.1	14.8		0.3	0.1	11.6		0.3				

Intersection Summary

HCM 7th Control Delay, s/veh 26.0
HCM 7th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
11: Kleefeld Ave./Clairemont Dr. & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱	↰		↰↱		↰	↰↱	↰
Traffic Volume (veh/h)	180	880	110	60	1060	410	90	50	40	490	50	200
Future Volume (veh/h)	180	880	110	60	1060	410	90	50	40	490	50	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1782	1782	1841	1841	1754	1820	1820	1820	1856	1856	1756
Adj Flow Rate, veh/h	189	926	104	63	1104	342	95	53	38	554	0	169
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	4	4	2	2	2	3	3	3
Cap, veh/h	143	1439	162	73	1507	634	123	68	49	659	0	270
Arrive On Green	0.16	0.94	0.94	0.03	0.29	0.29	0.14	0.14	0.14	0.19	0.00	0.19
Sat Flow, veh/h	1781	3066	344	1753	3497	1471	872	486	349	3534	0	1447
Grp Volume(v), veh/h	189	511	519	63	1104	342	186	0	0	554	0	169
Grp Sat Flow(s),veh/h/ln	1781	1693	1718	1753	1749	1471	1707	0	0	1767	0	1447
Q Serve(g_s), s	9.6	5.6	5.6	4.3	34.2	23.5	12.6	0.0	0.0	18.1	0.0	12.9
Cycle Q Clear(g_c), s	9.6	5.6	5.6	4.3	34.2	23.5	12.6	0.0	0.0	18.1	0.0	12.9
Prop In Lane	1.00		0.20	1.00		1.00	0.51		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	143	794	806	73	1507	634	240	0	0	659	0	270
V/C Ratio(X)	1.33	0.64	0.64	0.86	0.73	0.54	0.77	0.00	0.00	0.84	0.00	0.63
Avail Cap(c_a), veh/h	143	794	806	73	1507	634	412	0	0	854	0	350
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.4	2.1	2.1	58.0	36.4	32.6	49.7	0.0	0.0	47.1	0.0	45.0
Incr Delay (d2), s/veh	176.3	2.8	2.7	9.1	0.3	0.3	2.0	0.0	0.0	4.8	0.0	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.5	1.5	2.1	15.2	8.8	5.5	0.0	0.0	8.4	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	226.7	4.9	4.9	67.0	36.7	32.9	51.7	0.0	0.0	51.9	0.0	45.8
LnGrp LOS	F	A	A	E	D	C	D			D		D
Approach Vol, veh/h	1219			1509			186			723		
Approach Delay, s/veh	39.3			37.1			51.7			50.5		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	61.5		21.8	14.0	56.9		27.3				
Change Period (Y+Rc), s	4.4	* 5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	5.0	* 38		29.0	9.6	33.0		29.0				
Max Q Clear Time (g_c+I), s	10.3	7.6		14.6	11.6	36.2		20.1				
Green Ext Time (p_c), s	0.0	12.5		0.6	0.0	0.0		1.1				

Intersection Summary

HCM 7th Control Delay, s/veh 41.2
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 7th Signalized Intersection Summary
12: Genesee Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	800	450	450	980	150	400	550	200	170	950	150
Future Volume (veh/h)	250	800	450	450	980	150	400	550	200	170	950	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1754	1796	1796	1711	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	258	825	371	469	1021	125	412	567	165	179	1000	126
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	7	7	7	3	3	3	5	5	5
Cap, veh/h	215	816	497	348	939	555	389	718	766	206	717	699
Arrive On Green	0.02	0.08	0.08	0.11	0.28	0.28	0.11	0.39	0.39	0.12	0.39	0.39
Sat Flow, veh/h	3401	3497	1410	3319	3413	1391	3428	1856	1553	1739	1826	1532
Grp Volume(v), veh/h	258	825	371	469	1021	125	412	567	165	179	1000	126
Grp Sat Flow(s),veh/h/ln	1700	1749	1410	1659	1706	1391	1714	1856	1553	1739	1826	1532
Q Serve(g_s), s	7.6	28.0	27.2	12.6	33.0	7.2	13.6	32.4	7.2	12.1	47.1	5.9
Cycle Q Clear(g_c), s	7.6	28.0	27.2	12.6	33.0	7.2	13.6	32.4	7.2	12.1	47.1	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	816	497	348	939	555	389	718	766	206	717	699
V/C Ratio(X)	1.20	1.01	0.75	1.35	1.09	0.23	1.06	0.79	0.22	0.87	1.40	0.18
Avail Cap(c_a), veh/h	215	816	497	348	939	555	389	718	766	328	717	699
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	55.4	41.5	53.7	43.5	24.2	53.2	32.5	17.3	52.0	36.4	19.4
Incr Delay (d2), s/veh	112.9	27.1	6.1	165.1	49.1	0.5	62.5	5.4	0.1	8.3	186.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	16.2	11.0	13.2	20.0	0.1	9.1	15.1	2.5	5.6	56.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	171.7	82.5	47.6	218.8	92.6	24.7	115.7	37.9	17.4	60.3	222.8	19.4
LnGrp LOS	F	F	D	F	F	C	F	D	B	E	F	B
Approach Vol, veh/h	1454			1615			1144			1305		
Approach Delay, s/veh	89.4			124.0			63.0			180.9		
Approach LOS	F			F			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	33.0	18.0	52.0	12.0	38.0	18.6	51.4				
Change Period (Y+Rc), s	4.4	5.0	4.4	4.9	4.4	5.0	4.4	4.9				
Max Green Setting (Gmax), s	12.6	28.0	13.6	47.1	7.6	33.0	22.6	38.1				
Max Q Clear Time (g_c+1/4), s	14.6	30.0	15.6	49.1	9.6	35.0	14.1	34.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	115.7											
HCM 7th LOS	F											

HCM 7th Signalized Intersection Summary 13: Limerick Ave. & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↰	↗	↘
Traffic Volume (veh/h)	120	1100	200	230	1200	250	140	130	120	200	160	80
Future Volume (veh/h)	120	1100	200	230	1200	250	140	130	120	200	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	1.00		0.98	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	1158	169	242	1263	210	147	137	113	211	168	76
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	143	1361	581	246	1586	703	163	171	141	217	252	114
Arrive On Green	0.08	0.40	0.40	0.14	0.46	0.46	0.09	0.18	0.18	0.12	0.21	0.21
Sat Flow, veh/h	1711	3413	1457	1739	3469	1539	1781	937	773	1781	1187	537
Grp Volume(v), veh/h	126	1158	169	242	1263	210	147	0	250	211	0	244
Grp Sat Flow(s),veh/h/ln	1711	1706	1457	1739	1735	1539	1781	0	1710	1781	0	1723
Q Serve(g_s), s	8.7	37.1	9.5	16.7	37.3	10.3	9.8	0.0	16.8	14.2	0.0	15.6
Cycle Q Clear(g_c), s	8.7	37.1	9.5	16.7	37.3	10.3	9.8	0.0	16.8	14.2	0.0	15.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.31
Lane Grp Cap(c), veh/h	143	1361	581	246	1586	703	163	0	311	217	0	366
V/C Ratio(X)	0.88	0.85	0.29	0.98	0.80	0.30	0.90	0.00	0.80	0.97	0.00	0.67
Avail Cap(c_a), veh/h	143	1361	581	246	1586	703	163	0	413	217	0	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.4	32.8	24.5	51.4	27.8	20.5	54.0	0.0	47.0	52.5	0.0	43.4
Incr Delay (d2), s/veh	21.8	3.0	0.5	52.1	4.2	1.1	42.0	0.0	6.0	53.2	0.0	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	15.4	3.4	10.7	15.8	3.9	6.3	0.0	7.7	9.5	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.3	35.8	25.1	103.4	32.1	21.6	95.9	0.0	53.0	105.7	0.0	44.6
LnGrp LOS	E	D	C	F	C	C	F		D	F		D
Approach Vol, veh/h	1453		1715				397		455			
Approach Delay, s/veh	38.1		40.8				68.9		72.9			
Approach LOS	D		D				E		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.4	52.8	15.4	30.4	14.4	59.8	19.0	26.8				
Change Period (Y+Rc), s	4.4	5.0	4.4	4.9	4.4	* 5	4.4	4.9				
Max Green Setting (Gmax), s	40.7	40.7	11.0	32.6	10.0	* 48	14.6	29.0				
Max Q Clear Time (g_c+11g), s	39.1	39.1	11.8	17.6	10.7	39.3	16.2	18.8				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.8	0.0	8.0	0.0	0.7				

Intersection Summary

HCM 7th Control Delay, s/veh 46.2
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↑					↑	↑↑			
Traffic Volume (veh/h)	0	1710	480	0	0	0	0	1	1050	0	0	660
Future Volume (veh/h)	0	1710	480	0	0	0	0	1	1050	0	0	660
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach	No						No					
Adj Sat Flow, veh/h/ln	0	1826	1826				0	1870	1870			
Adj Flow Rate, veh/h	0	1800	0				0	1	1073			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	0	5	5				0	2	2			
Cap, veh/h	0	2392					0	760	1133			
Arrive On Green	0.00	0.48	0.00				0.00	0.41	0.41			
Sat Flow, veh/h	0	5149	1547				0	1870	2790			
Grp Volume(v), veh/h	0	1800	0				0	1	1073			
Grp Sat Flow(s),veh/h/ln	0	1662	1547				0	1870	1395			
Q Serve(g_s), s	0.0	28.6	0.0				0.0	0.0	36.2			
Cycle Q Clear(g_c), s	0.0	28.6	0.0				0.0	0.0	36.2			
Prop In Lane	0.00		1.00				0.00		1.00			
Lane Grp Cap(c), veh/h	0	2392					0	760	1133			
V/C Ratio(X)	0.00	0.75					0.00	0.00	0.95			
Avail Cap(c_a), veh/h	0	2968					0	785	1171			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	0.0	20.6	0.0				0.0	17.2	27.9			
Incr Delay (d2), s/veh	0.0	0.9	0.0				0.0	0.0	15.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	10.5	0.0				0.0	0.0	13.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	21.5	0.0				0.0	17.2	43.0			
LnGrp LOS	C						B			D		
Approach Vol, veh/h	1800						1074					
Approach Delay, s/veh	21.5						43.0					
Approach LOS	C						D					
Timer - Assigned Phs	2						8					
Phs Duration (G+Y+Rc), s	52.7						44.7					
Change Period (Y+Rc), s	6.0						5.1					
Max Green Setting (Gmax), s	58.0						40.9					
Max Q Clear Time (g_c+I1), s	30.6						38.2					
Green Ext Time (p_c), s	16.1						1.4					
Intersection Summary												
HCM 7th Control Delay, s/veh	29.5											
HCM 7th LOS	C											
Notes												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary 16: Genesee Ave. & Derrick Dr.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	90	60	110	290	50	140	90	1170	370	200	1280	70
Future Volume (veh/h)	90	60	110	290	50	140	90	1170	370	200	1280	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.99	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1730	1730	1730	1870	1870	1716	1870	1870	1800	1856	1856	1814
Adj Flow Rate, veh/h	95	63	104	305	53	118	95	1232	311	211	1347	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	52	36	23	294	39	498	86	2226	951	212	2460	1044
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.10	1.00	1.00	0.12	0.70	0.70
Sat Flow, veh/h	0	102	67	644	112	1434	1781	3554	1519	1767	3526	1496
Grp Volume(v), veh/h	262	0	0	358	0	118	95	1232	311	211	1347	59
Grp Sat Flow(s), veh/h/ln	170	0	0	756	0	1434	1781	1777	1519	1767	1763	1496
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.6	4.6	0.0	0.0	11.3	17.7	1.2
Cycle Q Clear(g_c), s	33.0	0.0	0.0	33.0	0.0	5.6	4.6	0.0	0.0	11.3	17.7	1.2
Prop In Lane	0.36		0.40	0.85		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	0	333	0	498	86	2226	951	212	2460	1044
V/C Ratio(X)	2.37	0.00	0.00	1.08	0.00	0.24	1.10	0.55	0.33	0.99	0.55	0.06
Avail Cap(c_a), veh/h	111	0	0	333	0	498	86	2226	951	212	2460	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.39	0.39	0.39	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	34.5	0.0	22.0	42.9	0.0	0.0	41.8	7.0	4.5
Incr Delay (d2), s/veh	643.0	0.0	0.0	70.8	0.0	0.1	90.3	0.4	0.4	60.2	0.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	0.0	0.0	14.4	0.0	1.9	4.1	0.1	0.1	8.3	5.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	673.9	0.0	0.0	105.3	0.0	22.1	133.2	0.4	0.4	102.0	7.9	4.6
LnGrp LOS	F			F		C	F	A	A	F	A	A
Approach Vol, veh/h	262			476			1638			1617		
Approach Delay, s/veh	673.9			84.7			8.1			20.1		
Approach LOS	F			F			A			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	65.8		37.9	9.0	72.6		37.9				
Change Period (Y+Rc), s	4.4	* 5.6		4.9	4.4	5.6		4.9				
Max Green Setting (Gmax), s	1.4	* 36		33.0	4.6	42.5		33.0				
Max Q Clear Time (g_c+113, s)	113.3	2.0		35.0	6.6	19.7		35.0				
Green Ext Time (p_c), s	0.0	31.2		0.0	0.0	18.3		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 65.7
HCM 7th LOS E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
17: Genesee Ave. & Mt. Etna Dr.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	100	140	220	100	270	260	1260	240	320	1230	160
Future Volume (veh/h)	120	100	140	220	100	270	260	1260	240	320	1230	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1786	1870	1870	1786
Adj Flow Rate, veh/h	126	105	132	232	105	256	274	1326	202	337	1295	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	3	3	3	2	2	2
Cap, veh/h	235	256	322	342	164	399	272	1265	538	257	1261	533
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.15	0.36	0.36	0.29	0.71	0.71
Sat Flow, veh/h	1015	748	940	1135	478	1166	1767	3526	1499	1781	3554	1503
Grp Volume(v), veh/h	126	0	237	232	0	361	274	1326	202	337	1295	134
Grp Sat Flow(s),veh/h/ln	1015	0	1688	1135	0	1645	1767	1763	1499	1781	1777	1503
Q Serve(g_s), s	11.3	0.0	10.2	18.7	0.0	17.6	14.6	34.1	9.5	13.7	33.7	3.0
Cycle Q Clear(g_c), s	28.9	0.0	10.2	28.9	0.0	17.6	14.6	34.1	9.5	13.7	33.7	3.0
Prop In Lane	1.00		0.56	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	0	577	342	0	562	272	1265	538	257	1261	533
V/C Ratio(X)	0.54	0.00	0.41	0.68	0.00	0.64	1.01	1.05	0.38	1.31	1.03	0.25
Avail Cap(c_a), veh/h	262	0	622	372	0	606	272	1265	538	257	1261	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.39	0.39	0.39
Uniform Delay (d), s/veh	38.5	0.0	23.9	35.0	0.0	26.4	40.2	30.4	22.6	33.8	13.8	9.3
Incr Delay (d2), s/veh	1.4	0.0	0.3	4.0	0.0	1.8	18.6	24.0	0.2	150.6	23.2	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	4.1	5.4	0.0	7.0	7.6	17.8	3.2	15.5	8.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.0	0.0	24.3	39.0	0.0	28.2	58.8	54.5	22.7	184.4	37.0	9.8
LnGrp LOS	D		C	D		C	F	F	C	F	F	A
Approach Vol, veh/h	363				593				1802		1766	
Approach Delay, s/veh	29.7				32.4				51.6		63.0	
Approach LOS	C				C				D		E	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	38.6	39.0	37.4		19.0	38.6	37.4					
Change Period (Y+Rc), s	4.9	* 4.9	4.9		4.4	4.9	4.9					
Max Green Setting (Gmax), s	34	* 34	35.0		14.6	31.2	35.0					
Max Q Clear Time (g_c+1/5), s	36.1		30.9		16.6	35.7	30.9					
Green Ext Time (p_c), s	0.0	0.0	0.6		0.0	0.0	1.1					
Intersection Summary												
HCM 7th Control Delay, s/veh	51.8											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 18: Genesee Ave. & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	980	220	240	1170	440	300	790	330	380	820	310
Future Volume (veh/h)	400	980	220	240	1170	440	300	790	330	380	820	310
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1780	1870	1870	1775	1811	1811	1728	1856	1856	1761
Adj Flow Rate, veh/h	412	1010	182	253	1232	370	316	832	278	400	863	261
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	3	3	3
Cap, veh/h	778	2498	1065	297	1773	520	313	818	348	409	916	380
Arrive On Green	0.44	0.71	0.71	0.17	0.69	0.69	0.19	0.48	0.48	0.12	0.26	0.26
Sat Flow, veh/h	1767	3526	1504	3456	5106	1499	3346	3441	1465	3428	3526	1461
Grp Volume(v), veh/h	412	1010	182	253	1232	370	316	832	278	400	863	261
Grp Sat Flow(s),veh/h/ln	1767	3526	1504	3456	5106	1499	3346	3441	1465	3428	3526	1461
Q Serve(g_s), s	23.8	16.4	7.9	9.9	20.0	24.0	13.1	33.3	22.5	16.3	33.6	22.5
Cycle Q Clear(g_c), s	23.8	16.4	7.9	9.9	20.0	24.0	13.1	33.3	22.5	16.3	33.6	22.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	778	2498	1065	297	1773	520	313	818	348	409	916	380
V/C Ratio(X)	0.53	0.40	0.17	0.85	0.70	0.71	1.01	1.02	0.80	0.98	0.94	0.69
Avail Cap(c_a), veh/h	778	2498	1065	328	1773	520	313	818	348	409	922	382
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.42	0.42	0.42	0.31	0.31	0.31
Uniform Delay (d), s/veh	28.6	8.3	13.5	57.1	17.0	22.7	56.9	36.7	33.9	61.5	50.8	46.7
Incr Delay (d2), s/veh	0.4	0.5	0.3	11.6	1.5	5.5	35.3	24.8	6.1	19.6	7.1	1.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.7	2.8	4.4	5.0	6.2	6.5	13.9	6.9	8.2	15.6	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.0	8.8	13.9	68.7	18.6	28.2	92.2	61.5	39.9	81.1	57.9	48.6
LnGrp LOS	C	A	B	E	B	C	F	F	D	F	E	D
Approach Vol, veh/h	1604			1855			1426			1524		
Approach Delay, s/veh	14.6			27.3			64.1			62.4		
Approach LOS	B			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	66.4	105.7	18.0	41.3	68.1	54.0	21.1	38.2				
Change Period (Y+Rc), s	4.4	5.3	4.9	* 4.9	5.3	* 5.4	4.4	4.9				
Max Green Setting (Gmax), s	13.3	58.0	13.1	* 37	22.6	* 49	16.7	33.0				
Max Q Clear Time (g_c+I1), s	11.9	18.4	15.1	35.6	25.8	26.0	18.3	35.3				
Green Ext Time (p_c), s	0.1	10.2	0.0	0.8	0.0	9.9	0.0	0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	40.6											
HCM 7th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary
19: Genesee Ave. & Mt. Alifan Dr.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	240	100	320	340	120	200	1160	210	90	940	200
Future Volume (veh/h)	200	240	100	320	340	120	200	1160	210	90	940	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1804	1804	1870	1870	1766	1811	1811	1775	1811	1811	1756
Adj Flow Rate, veh/h	211	253	105	333	354	125	211	1221	177	95	989	169
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	6	6	6
Cap, veh/h	381	266	110	359	391	308	234	1241	525	124	1048	450
Arrive On Green	0.21	0.22	0.22	0.07	0.07	0.07	0.14	0.36	0.36	0.14	0.61	0.61
Sat Flow, veh/h	1781	1202	499	1781	1870	1473	1725	3441	1455	1725	3441	1478
Grp Volume(v), veh/h	211	0	358	333	354	125	211	1221	177	95	989	169
Grp Sat Flow(s),veh/h/ln	1781	0	1701	1781	1870	1473	1725	1721	1455	1725	1721	1478
Q Serve(g_s), s	14.8	0.0	29.1	26.0	26.3	11.4	16.9	49.2	7.0	7.4	37.0	4.8
Cycle Q Clear(g_c), s	14.8	0.0	29.1	26.0	26.3	11.4	16.9	49.2	7.0	7.4	37.0	4.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	0	377	359	391	308	234	1241	525	124	1048	450
V/C Ratio(X)	0.55	0.00	0.95	0.93	0.91	0.41	0.90	0.98	0.34	0.76	0.94	0.38
Avail Cap(c_a), veh/h	394	0	377	394	414	326	328	1241	525	124	1048	450
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.47	0.47	0.47
Uniform Delay (d), s/veh	49.0	0.0	53.7	64.3	63.8	56.9	59.6	44.3	10.5	58.8	26.2	7.2
Incr Delay (d2), s/veh	0.8	0.0	33.4	25.6	21.6	0.3	17.2	21.9	1.7	11.3	9.7	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.9	15.1	15.7	4.6	8.3	23.9	2.5	3.4	11.8	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.9	0.0	87.2	90.0	85.4	57.2	76.8	66.3	12.3	70.1	35.9	8.3
LnGrp LOS	D		F	F	F	E	E	E	B	E	D	A
Approach Vol, veh/h	569				812				1609		1253	
Approach Delay, s/veh	73.3				82.9				61.7		34.8	
Approach LOS	E				F				E		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	50.0	56.0	33.1	35.9	23.4	47.6	34.9	34.1				
Change Period (Y+Rc), s	4.9	* 5.5	4.9	4.9	4.4	4.9	4.9	4.9				
Max Green Setting (Gmax), s	7.8	* 51	31.0	31.0	26.6	32.3	31.0	31.0				
Max Q Clear Time (g_c+I), s	19.4	51.2	28.0	31.1	18.9	39.0	16.8	28.3				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.2	0.0	0.2	0.5				

Intersection Summary

HCM 7th Control Delay, s/veh 59.4
HCM 7th LOS E

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬆			⬆		⬆	⬆		⬆	⬆	
Traffic Vol, veh/h	10	10	10	50	10	160	10	340	100	90	670	50
Future Vol, veh/h	10	10	10	50	10	160	10	340	100	90	670	50
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	11	11	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	80	-	-	30	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	11	11	53	11	168	11	358	105	95	705	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1305	1416	735	1346	1390	422	758	0	0	474	0	0
Stage 1	921	921	-	443	443	-	-	-	-	-	-	-
Stage 2	384	495	-	903	947	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	132	131	464	123	136	632	781	-	-	1088	-	-
Stage 1	313	316	-	594	576	-	-	-	-	-	-	-
Stage 2	639	546	-	324	303	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	0	-	-	-	-	-
Mov Cap-1 Maneuver	83	116	462	102	121	625	781	-	-	1076	-	-
Mov Cap-2 Maneuver	182	208	-	205	210	-	-	-	-	-	-	-
Stage 1	285	288	-	580	562	-	-	-	-	-	-	-
Stage 2	452	533	-	277	276	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	22.19		25.45		0.21		0.96					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	781	-	-	241	402	1076	-	-				
HCM Lane V/C Ratio	0.013	-	-	0.131	0.576	0.088	-	-				
HCM Ctrl Dly (s/v)	9.7	-	-	22.2	25.4	8.7	-	-				
HCM Lane LOS	A	-	-	C	D	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.4	3.5	0.3	-	-				

HCM 7th Signalized Intersection Summary
21: Mt. Alifan Dr./Mt. Abernathy Ave. & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 			  		
Traffic Volume (veh/h)	220	1540	90	310	1760	210	130	150	230	240	350	190
Future Volume (veh/h)	220	1540	90	310	1760	210	130	150	230	240	350	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1756	1870	1870	1813	1870	1870	1775	1870	1870	1766
Adj Flow Rate, veh/h	232	1621	76	326	1853	177	137	158	194	253	368	160
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	2048	581	326	2101	615	183	360	557	303	419	325
Arrive On Green	0.17	0.40	0.40	0.24	0.55	0.55	0.09	0.32	0.32	0.09	0.22	0.22
Sat Flow, veh/h	1781	5106	1448	1781	5106	1495	3456	1870	1464	3456	1870	1452
Grp Volume(v), veh/h	232	1621	76	326	1853	177	137	158	194	253	368	160
Grp Sat Flow(s),veh/h/ln	1781	1702	1448	1781	1702	1495	1728	1870	1464	1728	1870	1452
Q Serve(g_s), s	17.5	39.0	3.7	25.6	44.5	6.5	5.4	9.3	12.5	10.1	26.6	13.5
Cycle Q Clear(g_c), s	17.5	39.0	3.7	25.6	44.5	6.5	5.4	9.3	12.5	10.1	26.6	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	2048	581	326	2101	615	183	360	557	303	419	325
V/C Ratio(X)	0.79	0.79	0.13	1.00	0.88	0.29	0.75	0.44	0.35	0.83	0.88	0.49
Avail Cap(c_a), veh/h	295	2048	581	326	2101	615	197	521	683	410	636	494
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.55	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	36.8	16.5	53.0	28.7	11.1	62.9	41.5	26.2	62.8	52.5	47.4
Incr Delay (d2), s/veh	7.1	1.8	0.3	34.8	2.9	0.6	11.7	0.3	0.1	8.0	6.3	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	16.0	1.7	13.8	15.9	3.0	2.6	4.1	3.9	4.8	13.2	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.1	38.6	16.8	87.7	31.6	11.6	74.6	41.8	26.4	70.8	58.8	47.8
LnGrp LOS	E	D	B	F	C	B	E	D	C	E	E	D
Approach Vol, veh/h	1929			2356			489			781		
Approach Delay, s/veh	40.7			37.9			44.9			60.4		
Approach LOS	D			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	61.5	12.3	36.2	28.5	63.0	16.7	31.9				
Change Period (Y+Rc), s	4.4	5.3	4.9	* 4.9	5.3	* 5.4	4.4	4.9				
Max Green Setting (Gmax), s	25.6	39.8	8.0	* 48	7.7	* 58	16.6	39.0				
Max Q Clear Time (g_c+I1), s	27.6	41.0	7.4	28.6	19.5	46.5	12.1	14.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	10.6	0.2	0.9				

Intersection Summary

HCM 7th Control Delay, s/veh 42.6
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 29.9

Intersection LOS D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	200	260	320	580	200
Future Vol, veh/h	140	200	260	320	580	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	211	274	337	611	211
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left SB		EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right NB			EB
Conflicting Lanes Right	3	0	2
HCM Control Delay, s/veh	18.1	19.5	42.7
HCM LOS	C	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	49%
Vol Right, %	0%	0%	0%	0%	100%	0%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	260	160	160	140	200	387	393
LT Vol	260	0	0	140	0	0	0
Through Vol	0	160	160	0	0	387	193
RT Vol	0	0	0	0	200	0	200
Lane Flow Rate	274	168	168	147	211	407	414
Geometry Grp	6	6	6	6	6	6	6
Degree of Util (X)	0.657	0.38	0.297	0.383	0.476	0.879	0.853
Departure Headway (Hd)	8.645	8.132	6.352	9.361	8.133	7.778	7.413
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	416	441	563	383	442	464	489
Service Time	6.413	5.899	4.119	7.141	5.913	5.545	5.18
HCM Lane V/C Ratio	0.659	0.381	0.298	0.384	0.477	0.877	0.847
HCM Control Delay, s/veh	26.6	15.8	11.8	17.9	18.2	45.3	40.1
HCM Lane LOS	D	C	B	C	C	E	E
HCM 95th-tile Q	4.6	1.7	1.2	1.8	2.5	9.3	8.8

HCM 7th Signalized Intersection Summary
23: Mt. Albertine Ave./Cannington Dr. & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1980	170	160	2250	170	40	30	110	60	40	80
Future Volume (veh/h)	150	1980	170	160	2250	170	40	30	110	60	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1813	1870	1870	1847	1823	1823	1823	1870	1870	1870
Adj Flow Rate, veh/h	158	2084	143	167	2344	142	42	32	104	63	42	76
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	2763	811	165	2433	726	55	42	137	47	31	57
Arrive On Green	0.15	0.54	0.54	0.12	0.63	0.63	0.15	0.15	0.15	0.08	0.08	0.08
Sat Flow, veh/h	1781	5106	1499	1781	5106	1523	375	286	929	592	394	714
Grp Volume(v), veh/h	158	2084	143	167	2344	142	178	0	0	181	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1499	1781	1702	1523	1590	0	0	1700	0	0
Q Serve(g_s), s	11.6	44.3	6.8	13.0	60.5	5.5	15.0	0.0	0.0	11.1	0.0	0.0
Cycle Q Clear(g_c), s	11.6	44.3	6.8	13.0	60.5	5.5	15.0	0.0	0.0	11.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.24		0.58	0.35		0.42
Lane Grp Cap(c), veh/h	268	2763	811	165	2433	726	234	0	0	135	0	0
V/C Ratio(X)	0.59	0.75	0.18	1.01	0.96	0.20	0.76	0.00	0.00	1.34	0.00	0.00
Avail Cap(c_a), veh/h	268	2763	811	165	2433	726	352	0	0	135	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.55	0.46	0.46	0.46	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.4	24.9	16.3	61.4	24.5	14.4	57.3	0.0	0.0	64.5	0.0	0.0
Incr Delay (d2), s/veh	1.3	1.1	0.3	49.9	6.5	0.3	2.1	0.0	0.0	195.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	17.1	2.3	7.9	20.5	1.8	6.2	0.0	0.0	12.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.7	26.0	16.5	111.3	31.0	14.7	59.4	0.0	0.0	260.1	0.0	0.0
LnGrp LOS	E	C	B	F	C	B	E			F		
Approach Vol, veh/h	2385				2653				178		181	
Approach Delay, s/veh	27.5				35.1				59.4		260.1	
Approach LOS	C				D				E		F	
Timer - Assigned Phs	1	2			4	5	6			8		
Phs Duration (G+Y+Rc), s	7.4	81.1			25.5	26.4	72.1			16.0		
Change Period (Y+Rc), s	4.4	5.3			4.9	5.3	* 5.4			4.9		
Max Green Setting (Gmax), s	13.0	65.4			31.0	11.6	* 67			11.1		
Max Q Clear Time (g_c+11.5), s	13.0	46.3			17.0	13.6	62.5			13.1		
Green Ext Time (p_c), s	0.0	17.7			0.6	0.0	4.1			0.0		
Intersection Summary												
HCM 7th Control Delay, s/veh	40.1											
HCM 7th LOS	D											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 24: Eckstrom Ave./Charger Blvd. & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩ ↑↑↑			↩ ↑↑↑		↩	↩	↩	↩↑↑	↩	↩	
Traffic Volume (veh/h)	50	1940	160	380	2320	290	140	60	250	230	160	60
Future Volume (veh/h)	50	1940	160	380	2320	290	140	60	250	230	160	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	2042	157	400	2442	244	105	122	184	242	168	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	149	2123	162	311	2754	833	103	108	740	301	223	76
Arrive On Green	0.17	0.92	0.92	0.18	0.54	0.54	0.06	0.06	0.06	0.17	0.17	0.17
Sat Flow, veh/h	1781	4632	354	1767	5066	1533	1781	1870	3170	1781	1319	448
Grp Volume(v), veh/h	53	1398	801	400	2442	244	105	122	184	242	0	225
Grp Sat Flow(s),veh/h/ln	1781	1590	1806	1767	1689	1533	1781	1870	1585	1781	0	1767
Q Serve(g_s), s	3.7	42.4	45.7	24.6	59.5	12.1	8.1	8.1	6.6	18.3	0.0	17.0
Cycle Q Clear(g_c), s	3.7	42.4	45.7	24.6	59.5	12.1	8.1	8.1	6.6	18.3	0.0	17.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	149	1458	828	311	2754	833	103	108	740	301	0	298
V/C Ratio(X)	0.36	0.96	0.97	1.29	0.89	0.29	1.02	1.13	0.25	0.81	0.00	0.75
Avail Cap(c_a), veh/h	149	1458	828	311	2754	833	103	108	740	394	0	391
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	0.36	0.36	0.36	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.0	4.9	5.1	57.7	28.2	17.3	65.9	65.9	43.7	56.0	0.0	55.4
Incr Delay (d2), s/veh	0.3	11.0	17.8	138.4	1.8	0.3	93.8	124.9	0.1	6.7	0.0	3.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.2	6.4	22.7	22.7	4.2	6.4	7.6	2.6	8.8	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.3	15.9	22.9	196.1	29.9	17.7	159.8	190.8	43.8	62.6	0.0	59.4
LnGrp LOS	E	B	C	F	C	B	F	F	D	E		E
Approach Vol, veh/h	2252			3086			411			467		
Approach Delay, s/veh	19.3			50.5			117.1			61.1		
Approach LOS	B			D			F			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	69.5		28.5	17.0	81.5		13.0				
Change Period (Y+Rc), s	4.4	5.3		4.9	5.3	* 5.4		4.9				
Max Green Setting (Gmax), s	24.6	56.8		31.0	5.2	* 76		8.1				
Max Q Clear Time (g_c+20.6), s	24.6	47.7		20.3	5.7	61.5		10.1				
Green Ext Time (p_c), s	0.0	8.7		1.0	0.0	13.8		0.0				

Intersection Summary

HCM 7th Control Delay, s/veh 44.4
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 7th Signalized Intersection Summary 25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑					↑	↑↑
Traffic Volume (veh/h)	0	0	0	0	2480	400	0	0	590	0	1	560
Future Volume (veh/h)	0	0	0	0	2480	400	0	0	590	0	1	560
Initial Q (Qb), veh				0	0	0				0	0	0
Lane Width Adj.				1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach				No						No		
Adj Sat Flow, veh/h/ln				0	1841	1841				0	1870	1870
Adj Flow Rate, veh/h				0	2583	0				0	1	561
Peak Hour Factor				0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %				0	4	4				0	2	2
Cap, veh/h				0	2972					0	450	658
Arrive On Green				0.00	0.59	0.00				0.00	0.24	0.24
Sat Flow, veh/h				0	5191	1560				0	1870	2738
Grp Volume(v), veh/h				0	2583	0				0	1	561
Grp Sat Flow(s),veh/h/ln				0	1675	1560				0	1870	1369
Q Serve(g_s), s				0.0	23.1	0.0				0.0	0.0	10.5
Cycle Q Clear(g_c), s				0.0	23.1	0.0				0.0	0.0	10.5
Prop In Lane				0.00		1.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	2972					0	450	658
V/C Ratio(X)				0.00	0.87					0.00	0.00	0.85
Avail Cap(c_a), veh/h				0	3098					0	629	921
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	9.2	0.0				0.0	15.4	19.4
Incr Delay (d2), s/veh				0.0	2.7	0.0				0.0	0.0	4.2
Initial Q Delay(d3), s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	5.2	0.0				0.0	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				0.0	11.9	0.0				0.0	15.5	23.6
LnGrp LOS					B						B	C
Approach Vol, veh/h					2583						562	
Approach Delay, s/veh					11.9						23.6	
Approach LOS					B						C	
Timer - Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				17.4		36.2						
Change Period (Y+Rc), s				4.5		4.5						
Max Green Setting (Gmax), s				18.0		33.0						
Max Q Clear Time (g_c+I1), s				12.5		25.1						
Green Ext Time (p_c), s				0.4		6.5						
Intersection Summary												
HCM 7th Control Delay, s/veh				14.0								
HCM 7th LOS				B								
Notes												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↑					↑	↑↑			
Traffic Volume (veh/h)	0	1790	450	0	0	0	0	1	890	0	0	620
Future Volume (veh/h)	0	1790	450	0	0	0	0	1	890	0	0	620
Initial Q (Qb), veh	0	0	0				0	0	0			
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	0	1841	1841				0	1870	1870			
Adj Flow Rate, veh/h	0	1845	0				0	1	878			
Peak Hour Factor	0.97	0.97	0.97				0.95	0.95	0.95			
Percent Heavy Veh, %	0	4	4				0	2	2			
Cap, veh/h	0	2198					0	657	980			
Arrive On Green	0.00	0.44	0.00				0.00	0.35	0.35			
Sat Flow, veh/h	0	5191	1560				0	1870	2790			
Grp Volume(v), veh/h	0	1845	0				0	1	878			
Grp Sat Flow(s),veh/h/ln	0	1675	1560				0	1870	1395			
Q Serve(g_s), s	0.0	16.8	0.0				0.0	0.0	15.4			
Cycle Q Clear(g_c), s	0.0	16.8	0.0				0.0	0.0	15.4			
Prop In Lane	0.00		1.00				0.00		1.00			
Lane Grp Cap(c), veh/h	0	2198					0	657	980			
V/C Ratio(X)	0.00	0.84					0.00	0.00	0.90			
Avail Cap(c_a), veh/h	0	2357					0	721	1076			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	0.0	12.9	0.0				0.0	10.9	15.8			
Incr Delay (d2), s/veh	0.0	2.5	0.0				0.0	0.0	8.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	4.9	0.0				0.0	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	15.4	0.0				0.0	10.9	24.6			
LnGrp LOS	B			B C								
Approach Vol, veh/h	1845			879								
Approach Delay, s/veh	15.4			24.6								
Approach LOS	B			C								
Timer - Assigned Phs	2			8								
Phs Duration (G+Y+Rc), s	28.4			23.2								
Change Period (Y+Rc), s	5.8			5.1								
Max Green Setting (Gmax), s	24.2			19.9								
Max Q Clear Time (g_c+I1), s	18.8			17.4								
Green Ext Time (p_c), s	3.7			0.8								
Intersection Summary												
HCM 7th Control Delay, s/veh	18.4											
HCM 7th LOS	B											
Notes												
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary
27: Clairemont Dr & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔	↑↑	↗	↔	↑↑	↗
Traffic Volume (veh/h)	480	1200	120	500	1250	200	150	400	450	340	650	350
Future Volume (veh/h)	480	1200	120	500	1250	200	150	400	450	340	650	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1785	1856	1856	1785	1841	1841	1771	1870	1870	1799
Adj Flow Rate, veh/h	500	1250	100	526	1316	169	158	421	379	358	684	294
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	2	2	2
Cap, veh/h	467	1249	523	535	1272	536	222	763	550	251	805	544
Arrive On Green	0.14	0.35	0.35	0.16	0.36	0.36	0.13	0.22	0.22	0.14	0.23	0.23
Sat Flow, veh/h	3428	3526	1477	3428	3526	1486	1753	3497	1447	1781	3554	1484
Grp Volume(v), veh/h	500	1250	100	526	1316	169	158	421	379	358	684	294
Grp Sat Flow(s),veh/h/ln	1714	1763	1477	1714	1763	1486	1753	1749	1447	1781	1777	1484
Q Serve(g_s), s	20.6	53.6	4.9	23.1	54.6	8.3	13.1	16.2	33.0	21.3	27.9	2.5
Cycle Q Clear(g_c), s	20.6	53.6	4.9	23.1	54.6	8.3	13.1	16.2	33.0	21.3	27.9	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	1249	523	535	1272	536	222	763	550	251	805	544
V/C Ratio(X)	1.07	1.00	0.19	0.98	1.03	0.32	0.71	0.55	0.69	1.43	0.85	0.54
Avail Cap(c_a), veh/h	467	1249	523	535	1272	536	222	763	550	251	1073	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	48.8	16.2	63.7	48.3	15.6	63.5	52.6	40.1	65.0	56.0	38.1
Incr Delay (d2), s/veh	62.0	25.7	0.2	34.5	34.5	0.3	8.9	0.7	3.3	214.0	4.7	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	27.2	2.5	12.5	29.3	2.9	6.4	7.2	12.4	24.5	13.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	127.4	74.5	16.4	98.2	82.9	15.9	72.4	53.3	43.5	279.0	60.8	38.7
LnGrp LOS	F	F	B	F	F	B	E	D	D	F	E	D
Approach Vol, veh/h	1850			2011			958			1336		
Approach Delay, s/veh	85.7			81.3			52.5			114.4		
Approach LOS	F			F			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.0	59.3	24.4	39.6	26.3	61.0	25.7	38.3				
Change Period (Y+Rc), s	4.4	5.7	5.3	* 5.3	5.7	* 6.4	4.4	5.3				
Max Green Setting (Gmax), s	23.6	52.3	8.6	* 46	20.6	* 55	21.3	33.0				
Max Q Clear Time (g_c+2.5), s	25.1	55.6	15.1	29.9	22.6	56.6	23.3	35.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 7th Control Delay, s/veh	85.3
HCM 7th LOS	F

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
28: I-5 SB Ramps/I-5 SB Loop On Ramp & Clairemont Dr

Proposed Plan Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑	↑		↑			
Traffic Vol, veh/h	0	300	200	0	330	580	80	0	530	0	0	0
Future Vol, veh/h	0	300	200	0	330	580	80	0	530	0	0	0
Conflicting Peds, #/hr	0	0	5	5	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	90	0	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	316	211	0	347	611	84	0	558	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	-	0	0	-	-	0	600	-	268			
Stage 1	-	-	-	-	-	-	426	-	-			
Stage 2	-	-	-	-	-	-	174	-	-			
Critical Hdwy	-	-	-	-	-	-	6.84	-	6.94			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	-	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	-	-			
Follow-up Hdwy	-	-	-	-	-	-	3.52	-	3.32			
Pot Cap-1 Maneuver	0	-	-	0	-	0	433	0	730			
Stage 1	0	-	-	0	-	0	626	0	-			
Stage 2	0	-	-	0	-	0	839	0	-			
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	430	0	726			
Mov Cap-2 Maneuver	-	-	-	-	-	-	513	0	-			
Stage 1	-	-	-	-	-	-	624	0	-			
Stage 2	-	-	-	-	-	-	839	0	-			
Approach	EB			WB			NB					
HCM Ctrl Dly, s/v	0			0			22.93					
HCM LOS							C					
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBT	EBR	WBT							
Capacity (veh/h)	513 726		-	-	-							
HCM Lane V/C Ratio	0.164 0.768		-	-	-							
HCM Ctrl Dly (s/v)	13.4 24.4		-	-	-							
HCM Lane LOS	B C		-	-	-							
HCM 95th %tile Q(veh)	0.6 7.4		-	-	-							

HCM 7th Signalized Intersection Summary 29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	700	0	0	700	450	210	20	900	0	0	0
Future Volume (veh/h)	90	700	0	0	700	450	210	20	900	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1841	1841	1870	1870	1870			
Adj Flow Rate, veh/h	95	737	0	0	722	0	221	21	947			
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	4	4	2	2	2			
Cap, veh/h	100	1164	0	0	845		944	90	916			
Arrive On Green	0.06	0.33	0.00	0.00	0.23	0.00	0.58	0.58	0.58			
Sat Flow, veh/h	1781	3647	0	0	3681	1560	1633	155	1585			
Grp Volume(v), veh/h	95	737	0	0	722	0	242	0	947			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1841	1560	1789	0	1585			
Q Serve(g_s), s	6.0	19.8	0.0	0.0	21.1	0.0	7.4	0.0	64.9			
Cycle Q Clear(g_c), s	6.0	19.8	0.0	0.0	21.1	0.0	7.4	0.0	64.9			
Prop In Lane	1.00		0.00	0.00		1.00	0.91		1.00			
Lane Grp Cap(c), veh/h	100	1164	0	0	845		1034	0	916			
V/C Ratio(X)	0.95	0.63	0.00	0.00	0.85		0.23	0.00	1.03			
Avail Cap(c_a), veh/h	100	1409	0	0	1099		1034	0	916			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	52.8	32.0	0.0	0.0	41.5	0.0	11.6	0.0	23.7			
Incr Delay (d2), s/veh	73.2	0.3	0.0	0.0	4.3	0.0	0.1	0.0	38.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.7	8.4	0.0	0.0	9.9	0.0	2.9	0.0	50.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	126.1	32.4	0.0	0.0	45.8	0.0	11.7	0.0	62.4			
LnGrp LOS	F	C			D		B		F			
Approach Vol, veh/h	832			722			1189					
Approach Delay, s/veh	43.1			45.8			52.1					
Approach LOS	D			D			D					
Timer - Assigned Phs	2			4		5	6					
Phs Duration (G+Y+Rc), s	42.3			70.0		11.0	31.3					
Change Period (Y+Rc), s	5.5			5.1		4.7	5.5					
Max Green Setting (Gmax), s	44.5			64.9		6.3	33.5					
Max Q Clear Time (g_c+I1), s	21.8			66.9		8.0	23.1					
Green Ext Time (p_c), s	3.3			0.0		0.0	2.5					
Intersection Summary												
HCM 7th Control Delay, s/veh	47.7											
HCM 7th LOS	D											
Notes												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 7th Signalized Intersection Summary 30: Denver St. & Clairemont Dr

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1100	330	200	700	100	240	90	200	100	40	180
Future Volume (veh/h)	180	1100	330	200	700	100	240	90	200	100	40	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No		Yes	
Adj Sat Flow, veh/h/ln	1841	1841	1804	1826	1789	1789	1870	1836	1836	1723	1686	1686
Adj Flow Rate, veh/h	188	1146	311	206	722	82	253	95	190	105	42	170
Peak Hour Factor	0.96	0.96	0.96	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	2	2	2
Cap, veh/h	219	1174	512	237	1088	123	284	140	280	129	52	210
Arrive On Green	0.13	0.34	0.34	0.14	0.35	0.35	0.16	0.26	0.26	0.08	0.18	0.18
Sat Flow, veh/h	1753	3497	1524	1739	3077	349	1781	540	1081	1641	290	1172
Grp Volume(v), veh/h	188	1146	311	206	399	405	253	0	285	105	0	212
Grp Sat Flow(s),veh/h/ln	1753	1749	1524	1739	1700	1726	1781	0	1621	1641	0	1461
Q Serve(g_s), s	11.2	34.6	11.4	12.4	21.2	21.2	14.9	0.0	16.9	6.7	0.0	14.9
Cycle Q Clear(g_c), s	11.2	34.6	11.4	12.4	21.2	21.2	14.9	0.0	16.9	6.7	0.0	14.9
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.67	1.00		0.80
Lane Grp Cap(c), veh/h	219	1174	512	237	601	610	284	0	421	129	0	262
V/C Ratio(X)	0.86	0.98	0.61	0.87	0.66	0.66	0.89	0.00	0.68	0.81	0.00	0.81
Avail Cap(c_a), veh/h	387	1174	512	400	601	610	345	0	562	285	0	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.9	35.1	11.7	45.3	29.2	29.2	44.1	0.0	35.6	48.5	0.0	42.2
Incr Delay (d2), s/veh	3.8	20.8	2.6	5.0	3.1	3.0	19.2	0.0	0.8	4.6	0.0	2.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	17.6	4.1	5.6	8.9	9.0	8.0	0.0	6.7	2.9	0.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.6	55.9	14.3	50.3	32.3	32.2	63.3	0.0	36.4	53.1	0.0	44.4
LnGrp LOS	D	E	B	D	C	C	E		D	D		D
Approach Vol, veh/h	1645				1010				538		317	
Approach Delay, s/veh	47.3				35.9				49.1		47.3	
Approach LOS	D				D				D		D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	41.0	21.4	24.1	17.8	43.7	12.8	32.7				
Change Period (Y+Rc), s	5.9	* 5.1	4.4	4.9	4.4	5.9	4.4	4.9				
Max Green Setting (Gmax), s	24.6	* 36	20.7	35.0	23.6	36.1	18.6	37.1				
Max Q Clear Time (g_c+Tb), s	14.4	36.6	16.9	16.9	13.2	23.2	8.7	18.9				
Green Ext Time (p_c), s	0.2	0.0	0.1	0.8	0.2	5.3	0.1	1.1				

Intersection Summary

HCM 7th Control Delay, s/veh 44.3
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 31: Burgener Blvd. & Clairemont Dr

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	850	420	150	600	40	380	10	200	20	10	20
Future Volume (veh/h)	30	850	420	150	600	40	380	10	200	20	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1793	1826	1826	1793	1870	1835	1835	1844	1844	1844
Adj Flow Rate, veh/h	32	895	354	158	632	34	300	150	190	21	11	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	2	2	2
Cap, veh/h	40	916	1089	164	1061	879	394	161	205	27	14	25
Arrive On Green	0.02	0.50	0.50	0.09	0.58	0.58	0.22	0.22	0.22	0.04	0.04	0.04
Sat Flow, veh/h	1739	1826	1502	1739	1826	1513	1781	731	926	698	366	632
Grp Volume(v), veh/h	32	895	354	158	632	34	300	0	340	51	0	0
Grp Sat Flow(s), veh/h/ln	1739	1826	1502	1739	1826	1513	1781	0	1656	1695	0	0
Q Serve(g_s), s	2.3	60.9	10.9	11.5	28.2	1.2	20.0	0.0	25.6	3.8	0.0	0.0
Cycle Q Clear(g_c), s	2.3	60.9	10.9	11.5	28.2	1.2	20.0	0.0	25.6	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	0.41		0.37
Lane Grp Cap(c), veh/h	40	916	1089	164	1061	879	394	0	366	66	0	0
V/C Ratio(X)	0.80	0.98	0.33	0.96	0.60	0.04	0.76	0.00	0.93	0.77	0.00	0.00
Avail Cap(c_a), veh/h	151	920	1093	164	1061	879	407	0	378	374	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	61.7	30.9	6.4	57.3	17.1	11.4	46.3	0.0	48.5	60.5	0.0	0.0
Incr Delay (d2), s/veh	12.4	24.1	0.2	58.3	1.1	0.0	7.1	0.0	27.9	7.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	31.5	6.8	7.7	11.6	0.4	9.7	0.0	13.4	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.1	55.1	6.6	115.5	18.2	11.4	53.4	0.0	76.4	67.5	0.0	0.0
LnGrp LOS	E	E	A	F	B	B	D		E	E		
Approach Vol, veh/h	1281			824			640			51		
Approach Delay, s/veh	42.1			36.6			65.6			67.5		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	68.7		32.1	6.9	79.1		8.9				
Change Period (Y+Rc), s	5.3	* 5		4.0	4.0	5.3		4.0				
Max Green Setting (Gmax), s	12.0	* 64		29.0	11.0	64.7		28.0				
Max Q Clear Time (g_c+I1), s	13.5	62.9		27.6	4.3	30.2		5.8				
Green Ext Time (p_c), s	0.0	0.8		0.4	0.0	7.4		0.1				

Intersection Summary

HCM 7th Control Delay, s/veh 46.3
HCM 7th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 27

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔	↔	↔	
Traffic Vol, veh/h	60	50	20	130	60	360	10	160	80	380	180	120
Future Vol, veh/h	60	50	20	130	60	360	10	160	80	380	180	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	53	21	137	63	379	11	168	84	392	186	124
Number of Lanes	0	1	0	0	1	1	0	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay, s/veh	16.1	24.5	15.5	35.5
HCM LOS	C	C	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	6%	0%	46%	68%	0%	100%	0%
Vol Thru, %	94%	0%	38%	32%	0%	0%	60%
Vol Right, %	0%	100%	15%	0%	100%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	80	130	190	360	380	300
LT Vol	10	0	60	130	0	380	0
Through Vol	160	0	50	60	0	0	180
RT Vol	0	80	20	0	360	0	120
Lane Flow Rate	179	84	137	200	379	392	309
Geometry Grp	5	5	4b	5	5	5	5
Degree of Util (X)	0.417	0.179	0.331	0.454	0.748	0.879	0.625
Departure Headway (Hd)	8.391	7.634	8.715	8.177	7.108	8.074	7.272
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	469	412	440	508	451	495
Service Time	6.157	5.4	6.784	5.93	4.86	5.83	5.027
HCM Lane V/C Ratio	0.418	0.179	0.333	0.455	0.746	0.869	0.624
HCM Control Delay, s/veh	17.1	12.1	16.1	17.6	28.2	46.5	21.5
HCM Lane LOS	C	B	C	C	D	E	C
HCM 95th-tile Q	2	0.6	1.4	2.3	6.4	9.2	4.2

HCM 7th Signalized Intersection Summary
33: Clairemont Dr & Iroquois Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗	↖	↖	↗	↖
Traffic Volume (veh/h)	70	30	70	110	10	190	170	790	170	180	820	60
Future Volume (veh/h)	70	30	70	110	10	190	170	790	170	180	820	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.95	0.98		0.98	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No		No				No	
Adj Sat Flow, veh/h/ln	1799	1799	1799	1791	1791	1791	1826	1826	1617	1841	1841	1667
Adj Flow Rate, veh/h	74	32	67	116	11	180	179	832	143	189	863	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	4	4	4
Cap, veh/h	177	83	120	182	29	203	275	1145	839	276	1154	847
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	449	347	503	481	121	853	596	1826	1339	566	1841	1352
Grp Volume(v), veh/h	173	0	0	307	0	0	179	832	143	189	863	50
Grp Sat Flow(s),veh/h/ln	1299	0	0	1455	0	0	596	1826	1339	566	1841	1352
Q Serve(g_s), s	0.0	0.0	0.0	6.6	0.0	0.0	21.9	23.0	3.3	23.1	24.2	1.1
Cycle Q Clear(g_c), s	8.2	0.0	0.0	14.8	0.0	0.0	46.1	23.0	3.3	46.1	24.2	1.1
Prop In Lane	0.43		0.39	0.38		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	380	0	0	415	0	0	275	1145	839	276	1154	847
V/C Ratio(X)	0.46	0.00	0.00	0.74	0.00	0.00	0.65	0.73	0.17	0.68	0.75	0.06
Avail Cap(c_a), veh/h	406	0	0	442	0	0	275	1145	839	276	1154	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	0.0	26.7	0.0	0.0	25.9	9.4	5.7	25.9	9.6	5.3
Incr Delay (d2), s/veh	1.2	0.0	0.0	6.7	0.0	0.0	4.2	2.0	0.0	5.7	2.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	5.7	0.0	0.0	3.2	7.6	0.7	3.5	8.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.4	0.0	0.0	33.4	0.0	0.0	30.2	11.5	5.8	31.6	12.1	5.3
LnGrp LOS	C			C			C	B	A	C	B	A
Approach Vol, veh/h	173		307				1154			1102		
Approach Delay, s/veh	25.4		33.4				13.7			15.1		
Approach LOS	C		C				B			B		
Timer - Assigned Phs	2		4				6		8			
Phs Duration (G+Y+Rc), s	51.0		22.5				51.0		22.5			
Change Period (Y+Rc), s	4.9		5.0				4.9		5.0			
Max Green Setting (Gmax), s	46.1		19.0				46.1		19.0			
Max Q Clear Time (g_c+I1), s	48.1		10.2				48.1		16.8			
Green Ext Time (p_c), s	0.0		0.8				0.0		0.5			
Intersection Summary												
HCM 7th Control Delay, s/veh	17.2											
HCM 7th LOS	B											

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↙		↕↕		↘	↕↕
Traffic Vol, veh/h	40	80	830	130	80	1630
Future Vol, veh/h	40	80	830	130	80	1630
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	210	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	5	5	5	5
Mvmt Flow	42	84	874	137	84	1716
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1968	505	0	0	1011	0
Stage 1	942	-	-	-	-	-
Stage 2	1026	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	55	512	-	-	664	-
Stage 1	339	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	48	512	-	-	664	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	26.26	0		0.52		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	293	664	-	
HCM Lane V/C Ratio	-	-	0.431	0.127	-	
HCM Ctrl Dly (s/v)	-	-	26.3	11.2	-	
HCM Lane LOS	-	-	D	B	-	
HCM 95th %tile Q(veh)	-	-	2.1	0.4	-	

HCM 7th Signalized Intersection Summary
35: Morena Blvd. & Ashton St.

Proposed Plan Conditions
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	L	L
Traffic Volume (veh/h)	240	130	830	220	260	1410
Future Volume (veh/h)	240	130	830	220	260	1410
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	0.98		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1776	1776	1826	1826
Adj Flow Rate, veh/h	253	123	874	209	274	1484
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	305	148	991	237	312	2088
Arrive On Green	0.27	0.27	0.37	0.37	0.18	0.60
Sat Flow, veh/h	1140	554	2790	646	1739	3561
Grp Volume(v), veh/h	377	0	546	537	274	1484
Grp Sat Flow(s),veh/h/ln	1699	0	1687	1660	1739	1735
Q Serve(g_s), s	16.5	0.0	23.9	23.9	12.1	23.5
Cycle Q Clear(g_c), s	16.5	0.0	23.9	23.9	12.1	23.5
Prop In Lane	0.67	0.33		0.39	1.00	
Lane Grp Cap(c), veh/h	454	0	619	609	312	2088
V/C Ratio(X)	0.83	0.00	0.88	0.88	0.88	0.71
Avail Cap(c_a), veh/h	647	0	642	632	340	2187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	23.4	23.4	31.5	10.9
Incr Delay (d2), s/veh	4.3	0.0	13.8	14.1	19.8	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	11.2	11.1	6.6	7.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	31.4	0.0	37.2	37.5	51.3	12.1
LnGrp LOS	C		D	D	D	B
Approach Vol, veh/h	377		1083			1758
Approach Delay, s/veh	31.4		37.3			18.2
Approach LOS	C		D			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.5	34.3			52.9	26.0
Change Period (Y+Rc), s	4.4	* 5.4			5.4	4.9
Max Green Setting (Gmax), s	15.4	* 30			49.7	30.0
Max Q Clear Time (g_c+I1), s	14.1	25.9			25.5	18.5
Green Ext Time (p_c), s	0.1	3.0			16.4	0.5
Intersection Summary						
HCM 7th Control Delay, s/veh			26.2			
HCM 7th LOS			C			
Notes						
User approved volume balancing among the lanes for turning movement.						
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 7th Signalized Intersection Summary
36: W Morena Blvd. & Morena Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	200	490	640	150	440	1270
Future Volume (veh/h)	200	490	640	150	440	1270
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1841	1783	1782	1782	1826	1826
Adj Flow Rate, veh/h	211	434	674	142	463	1337
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	2	2	5	5
Cap, veh/h	428	739	876	184	426	2143
Arrive On Green	0.24	0.24	0.31	0.31	0.24	0.62
Sat Flow, veh/h	1753	1511	2872	586	1739	3561
Grp Volume(v), veh/h	211	434	410	406	463	1337
Grp Sat Flow(s), veh/h/ln	1753	1511	1693	1676	1739	1735
Q Serve(g_s), s	7.9	15.6	16.6	16.6	18.6	18.2
Cycle Q Clear(g_c), s	7.9	15.6	16.6	16.6	18.6	18.2
Prop In Lane	1.00	1.00		0.35	1.00	
Lane Grp Cap(c), veh/h	428	739	533	528	426	2143
V/C Ratio(X)	0.49	0.59	0.77	0.77	1.09	0.62
Avail Cap(c_a), veh/h	600	887	682	675	426	2444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	13.9	23.5	23.5	28.7	9.0
Incr Delay (d2), s/veh	0.3	0.3	4.7	4.8	69.1	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	4.9	7.0	6.9	15.5	5.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	25.0	14.2	28.2	28.3	97.8	9.4
LnGrp LOS	C	B	C	C	F	A
Approach Vol, veh/h	645		816			1800
Approach Delay, s/veh	17.7		28.3			32.2
Approach LOS	B		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	33.0	29.5			52.5	23.4
Change Period (Y+Rc), s	4.4	* 5.6			5.6	4.9
Max Green Setting (Gmax), s	18.6	* 31			53.5	26.0
Max Q Clear Time (g_c+20.6), s	20.6	18.6			20.2	17.6
Green Ext Time (p_c), s	0.0	5.3			13.7	0.9

Intersection Summary

HCM 7th Control Delay, s/veh	28.3
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 37: Knoxville St. & Morena Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (veh/h)	50	390	70	90	450	450	60	30	150	280	60	80
Future Volume (veh/h)	50	390	70	90	450	450	60	30	150	280	60	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1856	1856	1801	1803	1803	1803	1826	1826	1826
Adj Flow Rate, veh/h	53	411	67	95	474	379	63	32	142	295	63	76
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	2	2	2	2	2	2
Cap, veh/h	81	402	60	141	557	733	187	114	338	410	67	80
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	32	828	124	146	1147	1512	317	325	960	878	189	227
Grp Volume(v), veh/h	531	0	0	569	0	379	237	0	0	434	0	0
Grp Sat Flow(s),veh/h/ln	984	0	0	1294	0	1512	1602	0	0	1294	0	0
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	13.0	0.0	0.0
Cycle Q Clear(g_c), s	29.1	0.0	0.0	22.9	0.0	10.3	6.7	0.0	0.0	19.6	0.0	0.0
Prop In Lane	0.10		0.13	0.17		1.00	0.27		0.60	0.68		0.18
Lane Grp Cap(c), veh/h	543	0	0	698	0	733	639	0	0	556	0	0
V/C Ratio(X)	0.98	0.00	0.00	0.82	0.00	0.52	0.37	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	543	0	0	698	0	733	639	0	0	556	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	12.7	0.0	10.6	14.8	0.0	0.0	19.0	0.0	0.0
Incr Delay (d2), s/veh	32.7	0.0	0.0	7.0	0.0	0.3	0.6	0.0	0.0	7.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	6.5	0.0	2.9	2.3	0.0	0.0	6.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.5	0.0	0.0	19.7	0.0	10.9	15.3	0.0	0.0	26.2	0.0	0.0
LnGrp LOS	D			B		B	B			C		
Approach Vol, veh/h	531				948				237		434	
Approach Delay, s/veh	47.5				16.2				15.3		26.2	
Approach LOS	D				B				B		C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	34.0		26.0		34.0		26.0					
Change Period (Y+Rc), s	4.9		4.9		4.9		4.9					
Max Green Setting (Gmax), s	29.1		21.1		29.1		21.1					
Max Q Clear Time (g_c+l1), s	31.1		21.6		24.9		8.7					
Green Ext Time (p_c), s	0.0		0.0		1.6		1.6					
Intersection Summary												
HCM 7th Control Delay, s/veh			25.8									
HCM 7th LOS			C									

HCM 7th Signalized Intersection Summary 38: Tecolote Rd. & Morena Blvd.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+	+	+	+		+	+		+	+	
Traffic Volume (veh/h)	90	290	510	490	400	50	590	100	560	50	70	60
Future Volume (veh/h)	90	290	510	490	400	50	590	100	560	50	70	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	317	402	318	663	46	602	102	457	51	71	55
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	114	393	422	391	760	53	889	481	761	123	137	95
Arrive On Green	0.28	0.28	0.28	0.22	0.22	0.22	0.26	0.26	0.26	0.07	0.07	0.07
Sat Flow, veh/h	413	1422	1526	1753	3403	236	3456	1870	1582	1781	1984	1379
Grp Volume(v), veh/h	409	0	402	318	358	351	602	102	457	51	63	63
Grp Sat Flow(s),veh/h/ln	1835	0	1526	1753	1841	1798	1728	1870	1582	1781	1777	1586
Q Serve(g_s), s	23.3	0.0	29.1	19.4	21.1	21.2	17.6	4.8	23.7	3.1	3.8	4.4
Cycle Q Clear(g_c), s	23.3	0.0	29.1	19.4	21.1	21.2	17.6	4.8	23.7	3.1	3.8	4.4
Prop In Lane	0.22		1.00	1.00		0.13	1.00		1.00	1.00		0.87
Lane Grp Cap(c), veh/h	507	0	422	391	411	402	889	481	761	123	122	109
V/C Ratio(X)	0.81	0.00	0.95	0.81	0.87	0.87	0.68	0.21	0.60	0.42	0.51	0.58
Avail Cap(c_a), veh/h	507	0	422	421	442	432	931	504	780	269	268	240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	40.0	41.5	42.1	42.2	37.6	32.8	21.3	50.2	50.6	50.8
Incr Delay (d2), s/veh	9.3	0.0	31.9	10.9	16.3	16.8	2.6	0.5	2.0	2.2	3.3	4.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	14.5	9.5	11.4	11.2	7.7	2.3	13.4	1.5	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.2	0.0	71.9	52.3	58.5	59.0	40.2	33.3	23.3	52.5	53.9	55.6
LnGrp LOS	D		E	D	E	E	D	C	C	D	D	E
Approach Vol, veh/h	811			1027			1161			177		
Approach Delay, s/veh	59.4			56.7			32.9			54.1		
Approach LOS	E			E			C			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	33.8			36.0			12.6			30.0		
Change Period (Y+Rc), s	4.9			4.9			4.9			4.9		
Max Green Setting (Gmax), s	30.3			31.1			17.0			27.0		
Max Q Clear Time (g_c+I1), s	25.7			31.1			6.4			23.2		
Green Ext Time (p_c), s	3.2			0.0			0.5			2.0		

Intersection Summary

HCM 7th Control Delay, s/veh 48.6
HCM 7th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 7th Signalized Intersection Summary
39: Genesee Ave. & Marlesta Dr.

Proposed Plan Conditions
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	→	↑	→	←	↑
Traffic Volume (veh/h)	240	310	890	160	340	1280
Future Volume (veh/h)	240	310	890	160	340	1280
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1811
Adj Flow Rate, veh/h	253	261	918	132	358	1347
Peak Hour Factor	0.95	0.95	0.97	0.97	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	6	6
Cap, veh/h	281	597	949	1054	377	1374
Arrive On Green	0.16	0.16	0.51	0.51	0.22	0.76
Sat Flow, veh/h	1781	1585	1870	1585	1725	1811
Grp Volume(v), veh/h	253	261	918	132	358	1347
Grp Sat Flow(s), veh/h/ln	1781	1585	1870	1585	1725	1811
Q Serve(g_s), s	18.9	16.6	64.3	4.1	27.7	94.8
Cycle Q Clear(g_c), s	18.9	16.6	64.3	4.1	27.7	94.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	597	949	1054	377	1374
V/C Ratio(X)	0.90	0.44	0.97	0.13	0.95	0.98
Avail Cap(c_a), veh/h	342	651	959	1063	377	1374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	31.5	32.2	8.3	52.1	15.4
Incr Delay (d2), s/veh	20.5	0.2	21.6	0.1	33.0	19.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	6.4	32.6	2.2	15.1	36.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	76.5	31.7	53.8	8.4	85.1	35.1
LnGrp LOS	E	C	D	A	F	D
Approach Vol, veh/h	514		1050			1705
Approach Delay, s/veh	53.7		48.1			45.6
Approach LOS	D		D			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	34.0	75.1			109.1	26.3
Change Period (Y+Rc), s	4.4	* 6.4			6.4	4.9
Max Green Setting (Gmax), s	29.6	* 69			102.7	26.0
Max Q Clear Time (g_c+29.7), s	29.7	66.3			96.8	20.9
Green Ext Time (p_c), s	0.0	2.4			5.0	0.5

Intersection Summary

HCM 7th Control Delay, s/veh 47.7
HCM 7th LOS D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 40: Linda Vista Rd. & Genesee Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	540	490	600	550	250	200	850	190	270	520	460
Future Volume (veh/h)	160	540	490	600	550	250	200	850	190	270	520	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	568	442	632	579	210	211	895	160	284	547	436
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	948	541	602	1176	521	266	1424	608	285	758	604
Arrive On Green	0.11	0.27	0.27	0.17	0.33	0.33	0.08	0.40	0.40	0.08	0.41	0.41
Sat Flow, veh/h	1781	3554	1569	3456	3554	1574	3456	3554	1517	3456	1867	1488
Grp Volume(v), veh/h	168	568	442	632	579	210	211	895	160	284	521	462
Grp Sat Flow(s),veh/h/ln	1781	1777	1569	1728	1777	1574	1728	1777	1517	1728	1777	1578
Q Serve(g_s), s	11.1	16.7	30.9	20.9	15.6	12.4	7.2	24.2	8.5	9.9	29.5	29.5
Cycle Q Clear(g_c), s	11.1	16.7	30.9	20.9	15.6	12.4	7.2	24.2	8.5	9.9	29.5	29.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	196	948	541	602	1176	521	266	1424	608	285	722	641
V/C Ratio(X)	0.86	0.60	0.82	1.05	0.49	0.40	0.79	0.63	0.26	1.00	0.72	0.72
Avail Cap(c_a), veh/h	306	948	541	602	1176	521	305	1424	608	285	722	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.52	0.52	0.52	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	38.4	36.0	49.5	32.1	31.0	54.4	28.8	24.1	55.0	29.9	29.9
Incr Delay (d2), s/veh	8.4	1.3	10.0	40.6	0.3	0.4	10.0	2.1	1.1	52.2	6.2	6.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	7.2	13.2	12.2	6.6	4.8	3.5	10.6	3.2	6.3	13.7	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.9	39.7	46.0	90.2	32.4	31.4	64.5	30.9	25.1	107.2	36.1	36.8
LnGrp LOS	E	D	D	F	C	C	E	C	C	F	D	D
Approach Vol, veh/h	1178			1421			1266			1267		
Approach Delay, s/veh	45.1			57.9			35.8			52.3		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.3	37.3	13.7	54.2	17.6	45.0	14.3	53.6				
Change Period (Y+Rc), s	4.4	5.3	4.4	5.2	4.4	5.3	4.4	* 5.2				
Max Green Setting (Gmax), s	20.9	32.0	10.6	37.2	20.6	32.3	9.9	* 38				
Max Q Clear Time (g_c+Y), s	22.9	32.9	9.2	31.5	13.1	17.6	11.9	26.2				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.6	0.1	5.9	0.0	8.2				

Intersection Summary

HCM 7th Control Delay, s/veh 48.1
HCM 7th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary
41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	680	520	0	750	630	0	0	0	390	0	730
Future Volume (veh/h)	0	680	520	0	750	630	0	0	0	390	0	730
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	694	0	0	765	0				265	0	774
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1327		0	1327					558	0	994
Arrive On Green	0.00	0.37	0.00	0.00	0.37	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	3647	1585	0	3741	0				1781	0	3170
Grp Volume(v), veh/h	0	694	0	0	765	0				265	0	774
Grp Sat Flow(s), veh/h/ln	0	1777	1585	0	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	5.3	0.0	0.0	6.0	0.0				4.2	0.0	7.7
Cycle Q Clear(g_c), s	0.0	5.3	0.0	0.0	6.0	0.0				4.2	0.0	7.7
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1327		0	1327					558	0	994
V/C Ratio(X)	0.00	0.52		0.00	0.58					0.47	0.00	0.78
Avail Cap(c_a), veh/h	0	2266		0	2266					865	0	1539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	0.0	0.0	8.7	0.0				9.6	0.0	10.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				0.2	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.4	0.0				1.2	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	8.6	0.0	0.0	8.9	0.0				9.9	0.0	11.4
LnGrp LOS		A			A					A		B
Approach Vol, veh/h	694			765			1039					
Approach Delay, s/veh	8.6			8.9			11.0					
Approach LOS	A			A			B					
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	18.8			16.0			18.8					
Change Period (Y+Rc), s	5.8			5.1			5.8					
Max Green Setting (Gmax), s	22.2			16.9			22.2					
Max Q Clear Time (g_c+l1), s	7.3			9.7			8.0					
Green Ext Time (p_c), s	2.6			1.2			2.9					

Intersection Summary

HCM 7th Control Delay, s/veh	9.7
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary 42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←←	↑↑		←	↑↑	↑		↑↑			↑	↑↑
Traffic Volume (veh/h)	590	400	340	50	700	690	260	190	30	0	1	420
Future Volume (veh/h)	590	400	340	50	700	690	260	190	30	0	1	420
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	621	421	322	53	903	424	274	200	29	0	1	309
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	4	4	2	2	2	0	2	2
Cap, veh/h	692	857	651	207	1338	565	354	317	46	0	58	646
Arrive On Green	0.20	0.45	0.45	0.12	0.36	0.36	0.20	0.20	0.20	0.00	0.03	0.03
Sat Flow, veh/h	3456	1924	1461	1753	3681	1553	1781	1597	232	0	1870	2790
Grp Volume(v), veh/h	621	389	354	53	903	424	274	0	229	0	1	309
Grp Sat Flow(s),veh/h/ln	1728	1777	1607	1753	1841	1553	1781	0	1829	0	1870	1395
Q Serve(g_s), s	16.8	14.9	15.1	2.6	19.9	22.9	14.0	0.0	11.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	16.8	14.9	15.1	2.6	19.9	22.9	14.0	0.0	11.0	0.0	0.0	3.0
Prop In Lane	1.00		0.91	1.00		1.00	1.00		0.13	0.00		1.00
Lane Grp Cap(c), veh/h	692	792	716	207	1338	565	354	0	363	0	58	646
V/C Ratio(X)	0.90	0.49	0.49	0.26	0.67	0.75	0.77	0.00	0.63	0.00	0.02	0.48
Avail Cap(c_a), veh/h	731	792	716	274	1338	565	705	0	724	0	58	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	18.9	18.9	38.5	25.8	26.7	36.4	0.0	35.2	0.0	45.1	31.9
Incr Delay (d2), s/veh	13.4	2.2	2.4	0.6	2.7	8.9	3.6	0.0	1.8	0.0	0.1	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	6.2	5.7	1.1	8.7	9.3	6.3	0.0	5.0	0.0	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.8	21.1	21.4	39.1	28.5	35.6	40.1	0.0	37.0	0.0	45.2	32.4
LnGrp LOS	D	C	C	D	C	D	D		D		D	C
Approach Vol, veh/h	1364			1380			503			310		
Approach Delay, s/veh	34.7			31.1			38.7			32.5		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.1	49.3		6.5	23.9	41.4		24.2				
Change Period (Y+Rc), s	4.7	6.5		3.5	4.7	* 6.5		5.1				
Max Green Setting (Gmax), s	45.6	39.2		3.0	20.3	* 35		38.0				
Max Q Clear Time (g_c+I), s	14.6	17.1		5.0	18.8	24.9		16.0				
Green Ext Time (p_c), s	0.1	4.6		0.0	0.4	5.2		3.1				

Intersection Summary

HCM 7th Control Delay, s/veh 33.7
HCM 7th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th Signalized Intersection Summary 43: Linda Vista Rd. & Mesa College Dr.

Proposed Plan Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱	↰	↰↱	↰	↰	↰↱	↰	↰
Traffic Volume (veh/h)	200	630	190	220	750	320	200	390	110	340	680	180
Future Volume (veh/h)	200	630	190	220	750	320	200	390	110	340	680	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1736	1736	1841	1841	1797	1856	1856	1656	1870	1870	1715
Adj Flow Rate, veh/h	208	656	178	229	781	266	208	406	92	354	708	151
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	215	1333	361	286	1994	867	246	616	447	413	695	528
Arrive On Green	0.12	0.52	0.52	0.16	0.57	0.57	0.07	0.33	0.33	0.12	0.37	0.37
Sat Flow, veh/h	1781	2544	690	1753	3497	1520	3428	1856	1347	3456	1870	1420
Grp Volume(v), veh/h	208	425	409	229	781	266	208	406	92	354	708	151
Grp Sat Flow(s),veh/h/ln	1781	1650	1584	1753	1749	1520	1714	1856	1347	1728	1870	1420
Q Serve(g_s), s	13.9	19.8	19.9	15.1	14.8	10.9	7.2	22.4	6.3	12.1	44.6	10.5
Cycle Q Clear(g_c), s	13.9	19.8	19.9	15.1	14.8	10.9	7.2	22.4	6.3	12.1	44.6	10.5
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	864	830	286	1994	867	246	616	447	413	695	528
V/C Ratio(X)	0.97	0.49	0.49	0.80	0.39	0.31	0.85	0.66	0.21	0.86	1.02	0.29
Avail Cap(c_a), veh/h	215	864	830	286	1994	867	246	616	447	507	695	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	18.3	18.3	48.3	14.3	13.4	55.0	34.2	33.5	51.8	37.7	36.1
Incr Delay (d2), s/veh	51.3	0.4	0.4	14.0	0.6	0.9	22.0	3.0	0.3	10.1	38.9	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	7.5	7.3	7.7	5.9	3.9	3.9	10.6	2.1	5.8	27.5	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	103.8	18.7	18.7	62.3	14.8	14.3	77.1	37.2	33.8	61.9	76.6	37.2
LnGrp LOS	F	B	B	E	B	B	E	D	C	E	F	D
Approach Vol, veh/h	1042		1276				706		1213			
Approach Delay, s/veh	35.7		23.3				48.5		67.4			
Approach LOS	D		C				D		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	45.1	25.5	68.5	13.8	50.0	18.9	75.0					
Change Period (Y+Rc), s	4.4	5.2	5.8	* 4.9	5.2	* 5.4	4.4	5.8				
Max Green Setting (Gmax), s	35.8	17.0	* 31	8.6	* 45	14.5	32.3					
Max Q Clear Time (g_c+1/4), s	24.4	17.1	21.9	9.2	46.6	15.9	16.8					
Green Ext Time (p_c), s	0.3	3.1	0.0	3.3	0.0	0.0	0.0	12.4				
Intersection Summary												
HCM 7th Control Delay, s/veh	43.2											
HCM 7th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th TWSC
44: Linda Vista Rd. & Kearny High School Dwy./Dwy.

Proposed Plan Conditions
PM Peak Hour

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↖	↕		↖	↕	
Traffic Vol, veh/h	10	0	30	5	0	10	50	680	10	10	1060	10
Future Vol, veh/h	10	0	30	5	0	10	50	680	10	10	1060	10
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	1	1	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	300	-	-	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	10	0	31	5	0	11	53	716	11	11	1116	11

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	1612	1982	570	1406	1982	364	1133	0	0	727	0	0
Stage 1	1149	1149	-	827	827	-	-	-	-	-	-	-
Stage 2	463	833	-	579	1154	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	127	78	*777	*206	78	633	826	-	-	865	-	-
Stage 1	419	423	-	*332	384	-	-	-	-	-	-	-
Stage 2	548	382	-	*733	419	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	-	-	-	-	-	-
Mov Cap-1 Maneuver	115	71	*772	*183	71	632	821	-	-	864	-	-
Mov Cap-2 Maneuver	257	204	-	*258	196	-	-	-	-	-	-	-
Stage 1	411	415	-	*310	359	-	-	-	-	-	-	-
Stage 2	505	357	-	*695	412	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.62	13.78	0.65	0.09
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	821	-	-	514	426	864	-
HCM Lane V/C Ratio	0.064	-	-	0.08	0.037	0.012	-
HCM Ctrl Dly (s/v)	9.7	-	-	12.6	13.8	9.2	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.1	0	-

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

HCM 7th Signalized Intersection Summary
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↔↔	↔
Traffic Volume (veh/h)	560	0	0	1310	260	380
Future Volume (veh/h)	560	0	0	1310	260	380
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1870	1870
Adj Flow Rate, veh/h	583	0	0	1365	368	187
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	1603	0	0	1833	598	266
Arrive On Green	0.61	0.00	0.00	0.61	0.17	0.17
Sat Flow, veh/h	3741	0	0	3741	3563	1585
Grp Volume(v), veh/h	583	0	0	1365	368	187
Grp Sat Flow(s), veh/h/ln	1309	0	0	1496	1781	1585
Q Serve(g_s), s	5.1	0.0	0.0	15.1	4.4	5.2
Cycle Q Clear(g_c), s	5.1	0.0	0.0	15.1	4.4	5.2
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1603	0	0	1833	598	266
V/C Ratio(X)	0.36	0.00	0.00	0.74	0.62	0.70
Avail Cap(c_a), veh/h	2252	0	0	2574	760	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	6.4	17.9	18.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	1.0	4.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	2.8	1.7	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	4.6	0.0	0.0	7.2	19.0	22.8
LnGrp LOS	A			A	B	C
Approach Vol, veh/h	583			1365	555	
Approach Delay, s/veh	4.6			7.2	20.3	
Approach LOS	A			A	C	
Timer - Assigned Phs	2			4	6	
Phs Duration (G+Y+Rc), s	33.5			12.9	33.5	
Change Period (Y+Rc), s	5.1			5.1	5.1	
Max Green Setting (Gmax), s	39.9			9.9	39.9	
Max Q Clear Time (g_c+l1), s	7.1			7.2	17.1	
Green Ext Time (p_c), s	4.4			0.6	11.3	
Intersection Summary						
HCM 7th Control Delay, s/veh			9.5			
HCM 7th LOS			A			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM 7th Signalized Intersection Summary 47: Mission Bay Dr. & Garnet Ave.

Proposed Plan Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	580	1100	520	350	1020	500	620	410	350	300	380	900
Future Volume (veh/h)	580	1100	520	350	1020	500	620	410	350	300	380	900
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	586	1111	426	354	1030	426	626	414	283	303	384	860
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	641	1405	895	360	1459	798	593	1024	751	353	398	1089
Arrive On Green	0.19	0.40	0.40	0.20	0.41	0.41	0.17	0.29	0.29	0.10	0.21	0.21
Sat Flow, veh/h	3456	3554	1574	1767	3526	1541	3456	3554	1486	3456	1870	2684
Grp Volume(v), veh/h	586	1111	426	354	1030	426	626	414	283	303	384	860
Grp Sat Flow(s),veh/h/ln	1728	1777	1574	1767	1763	1541	1728	1777	1486	1728	1870	1342
Q Serve(g_s), s	25.8	42.6	13.4	30.9	37.5	28.7	26.6	14.5	18.5	13.4	31.5	32.5
Cycle Q Clear(g_c), s	25.8	42.6	13.4	30.9	37.5	28.7	26.6	14.5	18.5	13.4	31.5	32.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	641	1405	895	360	1459	798	593	1024	751	353	398	1089
V/C Ratio(X)	0.91	0.79	0.48	0.98	0.71	0.53	1.06	0.40	0.38	0.86	0.96	0.79
Avail Cap(c_a), veh/h	927	1405	895	360	1459	798	593	1024	751	611	398	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.9	41.2	12.2	61.4	37.6	25.1	64.2	44.5	24.7	68.5	60.4	27.3
Incr Delay (d2), s/veh	8.0	4.6	1.8	29.3	1.5	1.3	52.5	0.4	0.5	2.4	35.8	4.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	19.1	4.6	16.5	16.1	10.5	16.1	6.6	6.5	6.1	18.9	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.9	45.8	14.0	90.8	39.1	26.4	116.7	44.9	25.2	70.9	96.2	31.3
LnGrp LOS	E	D	B	F	D	C	F	D	C	E	F	C
Approach Vol, veh/h	2123				1810				1323		1547	
Approach Delay, s/veh	46.1				46.2				74.7		55.2	
Approach LOS	D				D				E		E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.5	38.3	33.2	69.5	20.2	49.6	36.0	66.7				
Change Period (Y+Rc), s	4.9	* 5.3	4.4	4.9	4.4	4.9	4.4	4.9				
Max Green Setting (Gmax), s	26.6	* 33	41.6	34.8	27.4	32.6	31.6	44.8				
Max Q Clear Time (g_c+20.6), s	26.6	34.5	27.8	39.5	15.4	20.5	32.9	44.6				
Green Ext Time (p_c), s	0.0	0.0	1.0	0.0	0.5	4.7	0.0	0.2				
Intersection Summary												
HCM 7th Control Delay, s/veh			53.7									
HCM 7th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th Signalized Intersection Summary 48: Morena Blvd. SB Ramps

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	180	350	370	890	970	470
Future Volume (veh/h)	180	350	370	890	970	470
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1949	1671
Adj Flow Rate, veh/h	189	368	389	937	1021	495
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	236	587	423	1501	1038	942
Arrive On Green	0.13	0.13	0.24	0.80	0.53	0.53
Sat Flow, veh/h	1781	1585	1781	1870	1949	1416
Grp Volume(v), veh/h	189	368	389	937	1021	495
Grp Sat Flow(s), veh/h/ln	1781	1585	1781	1870	1949	1416
Q Serve(g_s), s	12.7	0.0	26.4	24.5	63.7	22.3
Cycle Q Clear(g_c), s	12.7	0.0	26.4	24.5	63.7	22.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	236	587	423	1501	1038	942
V/C Ratio(X)	0.80	0.63	0.92	0.62	0.98	0.53
Avail Cap(c_a), veh/h	417	748	619	1707	1039	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	32.0	46.0	4.8	28.4	10.7
Incr Delay (d2), s/veh	6.1	1.1	14.4	0.6	23.9	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.2	13.3	7.6	35.2	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	58.2	33.1	60.4	5.4	52.3	11.2
LnGrp LOS	E	C	E	A	D	B
Approach Vol, veh/h	557			1326	1516	
Approach Delay, s/veh	41.6			21.5	38.9	
Approach LOS	D			C	D	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	103.4			20.4	33.4	69.9
Change Period (Y+Rc), s	4.0			4.0	4.0	4.0
Max Green Setting (Gmax), s	113.0			29.0	43.0	66.0
Max Q Clear Time (g_c+l1), s	26.5			14.7	28.4	65.7
Green Ext Time (p_c), s	10.3			1.7	1.1	0.3
Intersection Summary						
HCM 7th Control Delay, s/veh			32.6			
HCM 7th LOS			C			

HCM 7th Signalized Intersection Summary 49: Morena Blvd. SB On Ramp/Morena Blvd. SB Ramps

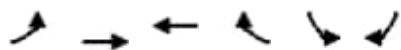
Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	50	10	300	30	500	10	650	280	250	950	60
Future Volume (veh/h)	80	50	10	300	30	500	10	650	280	250	950	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1844	1844	1870	1870	1835	1870	1826	1796	1826	1792	1836
Adj Flow Rate, veh/h	84	53	10	316	32	421	11	684	266	263	1000	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	5	5	5	2
Cap, veh/h	222	187	35	440	45	680	24	905	382	299	1372	78
Arrive On Green	0.12	0.12	0.12	0.27	0.27	0.27	0.01	0.26	0.26	0.17	0.42	0.42
Sat Flow, veh/h	1781	1494	282	1625	165	1521	1781	3469	1464	1739	3270	186
Grp Volume(v), veh/h	84	0	63	348	0	421	11	684	266	263	521	536
Grp Sat Flow(s),veh/h/ln	1781	0	1776	1789	0	1521	1781	1735	1464	1739	1703	1753
Q Serve(g_s), s	4.0	0.0	3.0	16.4	0.0	19.9	0.6	17.0	15.3	13.8	23.9	23.9
Cycle Q Clear(g_c), s	4.0	0.0	3.0	16.4	0.0	19.9	0.6	17.0	15.3	13.8	23.9	23.9
Prop In Lane	1.00		0.16	0.91		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	222	0	222	485	0	680	24	905	382	299	714	736
V/C Ratio(X)	0.38	0.00	0.28	0.72	0.00	0.62	0.46	0.76	0.70	0.88	0.73	0.73
Avail Cap(c_a), veh/h	553	0	551	555	0	739	95	1337	564	372	929	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	37.1	30.8	0.0	20.0	45.8	31.8	31.2	37.7	22.7	22.7
Incr Delay (d2), s/veh	1.1	0.0	0.7	3.8	0.0	1.4	13.5	1.4	2.3	17.8	2.1	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.3	7.4	0.0	7.0	0.3	7.1	5.5	7.2	9.6	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.6	0.0	37.8	34.6	0.0	21.4	59.3	33.2	33.5	55.5	24.7	24.7
LnGrp LOS	D		D	C		C	E	C	C	E	C	C
Approach Vol, veh/h	147			769			961			1320		
Approach Delay, s/veh	38.3			27.4			33.6			30.9		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.1	28.4		15.7	5.2	43.2		29.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	20.0	36.0		29.0	5.0	51.0		29.0				
Max Q Clear Time (g_c+T1), s	15.8	19.0		6.0	2.6	25.9		21.9				
Green Ext Time (p_c), s	0.3	5.4		0.5	0.0	7.9		2.3				
Intersection Summary												
HCM 7th Control Delay, s/veh				31.2								
HCM 7th LOS				C								

HCM 7th Signalized Intersection Summary
50: Balboa Ave. & Moraga Ave.

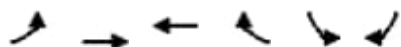
Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Volume (veh/h)	560	1590	1670	230	200	400
Future Volume (veh/h)	560	1590	1670	230	200	400
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1841	1841
Adj Flow Rate, veh/h	589	1674	1758	194	211	337
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	3	4	4
Cap, veh/h	590	2532	1806	805	363	323
Arrive On Green	0.17	0.71	0.51	0.51	0.21	0.21
Sat Flow, veh/h	3456	3647	3618	1572	1753	1560
Grp Volume(v), veh/h	589	1674	1758	194	211	337
Grp Sat Flow(s), veh/h/ln	1728	1777	1763	1572	1753	1560
Q Serve(g_s), s	25.5	38.4	72.7	10.3	16.3	31.0
Cycle Q Clear(g_c), s	25.5	38.4	72.7	10.3	16.3	31.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	590	2532	1806	805	363	323
V/C Ratio(X)	1.00	0.66	0.97	0.24	0.58	1.04
Avail Cap(c_a), veh/h	590	2554	1809	807	363	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	11.7	35.6	20.3	53.6	59.4
Incr Delay (d2), s/veh	36.4	0.8	15.4	0.2	1.6	62.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	13.6	33.2	3.8	7.4	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	98.5	12.5	50.9	20.6	55.2	121.5
LnGrp LOS	F	B	D	C	E	F
Approach Vol, veh/h		2263	1952		548	
Approach Delay, s/veh		34.9	47.9		96.0	
Approach LOS		C	D		F	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.2		36.6	30.0	83.2
Change Period (Y+Rc), s		* 6.5		5.6	4.4	6.5
Max Green Setting (Gmax)*, s		1E+02		31.0	25.6	76.9
Max Q Clear Time (g_c+l1), s		40.4		33.0	27.5	74.7
Green Ext Time (p_c), s		40.6		0.0	0.0	2.0
Intersection Summary						
HCM 7th Control Delay, s/veh			47.3			
HCM 7th LOS			D			
Notes						
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 7th Signalized Intersection Summary
51: Balboa Ave./Garnet Ave.

Proposed Plan Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	0	0	1540	530	1	840
Future Volume (veh/h)	0	0	1540	530	1	840
Initial Q (Qb), veh			0	0	0	0
Lane Width Adj.			1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			1674	576	1	913
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			4008	1244	0	0
Arrive On Green			0.78	0.78	0.00	0.00
Sat Flow, veh/h			5274	1585	0	
Grp Volume(v), veh/h			1674	576	0.0	
Grp Sat Flow(s), veh/h/ln			1702	1585		
Q Serve(g_s), s			2.2	2.6		
Cycle Q Clear(g_c), s			2.2	2.6		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			4008	1244		
V/C Ratio(X)			0.42	0.46		
Avail Cap(c_a), veh/h			5148	1598		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.7	0.8		
Incr Delay (d2), s/veh			0.1	0.3		
Initial Q Delay(d3), s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh			0.8	1.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			2250			
Approach Delay, s/veh			0.9			
Approach LOS			A			
Timer - Assigned Phs					6	
Phs Duration (G+Y+Rc), s					20.9	
Change Period (Y+Rc), s					4.5	
Max Green Setting (Gmax), s					21.1	
Max Q Clear Time (g_c+l1), s					4.6	
Green Ext Time (p_c), s					11.9	
Intersection Summary						
HCM 7th Control Delay, s/veh			0.9			
HCM 7th LOS			A			

Attachment G - 95th Percentile Queue Reports –
Clairemont CPU Proposed Plan Conditions

DRAFT

Queues

Proposed Plan Conditions

1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

AM Peak Hour



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	411	263	642	726	568	400
v/c Ratio	0.85	0.45	0.85	0.35	0.52	0.52
Control Delay (s/veh)	47.3	8.8	30.3	7.8	28.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.3	8.8	30.3	7.8	28.9	5.9
Queue Length 50th (ft)	216	23	50	121	143	0
Queue Length 95th (ft)	313	80	117	m167	211	72
Internal Link Dist (ft)	863			352	1080	
Turn Bay Length (ft)			185			190
Base Capacity (vph)	570	649	847	2104	1101	765
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.41	0.76	0.35	0.52	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions

AM Peak Hour

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	170	167	379	1042	968	421	547
v/c Ratio	0.96	0.94	0.75	0.65	1.06	1.04	0.21
Control Delay (s/veh)	100.9	95.6	14.8	20.3	62.5	65.3	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	100.9	95.6	14.8	20.3	62.5	65.3	5.3
Queue Length 50th (ft)	103	101	0	226	~486	~248	84
Queue Length 95th (ft)	#234	#228	#113	295	#725	#398	75
Internal Link Dist (ft)		783		2477			352
Turn Bay Length (ft)	400		65		50	120	
Base Capacity (vph)	177	178	506	1604	916	406	2594
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.94	0.75	0.65	1.06	1.04	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Proposed Plan Conditions

4: Genesee Ave. & SR-52 EB Ramps

AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	105	211	1537	874	400	684
v/c Ratio	0.54	0.58	1.40	0.86	1.52	0.48
Control Delay (s/veh)	65.5	13.2	211.3	27.6	291.1	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.5	13.2	211.3	27.6	291.1	6.9
Queue Length 50th (ft)	87	0	~1711	449	~464	142
Queue Length 95th (ft)	145	70	#2400	#1000	#784	391
Internal Link Dist (ft)	831		2787			1658
Turn Bay Length (ft)				150	520	
Base Capacity (vph)	427	542	1097	1013	263	1439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.39	1.40	0.86	1.52	0.48
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Queues

15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd

Proposed Plan Conditions

AM Peak Hour

	→	↘	↑	↗	↓
Lane Group	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	1032	716	1	558	421
v/c Ratio	0.54	0.48	0.00	0.68	1.90
Control Delay (s/veh)	9.1	1.1	10.0	14.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.1	1.1	10.0	14.7	0.0
Queue Length 50th (ft)	50	0	0	40	0
Queue Length 95th (ft)	78	0	2	#97	0
Internal Link Dist (ft)	1462		422		683
Turn Bay Length (ft)		250			
Base Capacity (vph)	2690	1501	614	976	221
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.48	0.00	0.57	1.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour



Lane Group	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	1895	295	453	1	347
v/c Ratio	0.69	0.19	2.11	0.00	0.68
Control Delay (s/veh)	8.0	0.3	0.0	14.0	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.0	0.3	0.0	14.0	20.2
Queue Length 50th (ft)	92	0	0	0	32
Queue Length 95th (ft)	130	0	0	3	#78
Internal Link Dist (ft)	1019		639	709	
Turn Bay Length (ft)					
Base Capacity (vph)	2896	1553	215	336	554
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.19	2.11	0.00	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions
AM Peak Hour

	→	↘	↑	↗	↓
Lane Group	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	1653	878	1	484	400
v/c Ratio	0.69	0.57	0.00	0.71	1.86
Control Delay (s/veh)	9.2	1.5	12.0	19.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.2	1.5	12.0	19.7	0.0
Queue Length 50th (ft)	87	0	0	47	0
Queue Length 95th (ft)	123	0	3	#106	0
Internal Link Dist (ft)	1019		850		648
Turn Bay Length (ft)					
Base Capacity (vph)	2734	1553	450	731	215
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.57	0.00	0.66	1.86

Intersection Summary

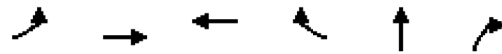
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr.

Proposed Plan Conditions

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	305	421	1269	552	179	474
v/c Ratio	1.10	0.20	0.98	0.63	0.33	0.97
Control Delay (s/veh)	125.2	10.6	54.4	5.5	31.3	73.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	125.2	10.6	54.4	5.5	31.3	73.3
Queue Length 50th (ft)	188	72	471	0	97	329
Queue Length 95th (ft)	#265	108	#641	83	158	#541
Internal Link Dist (ft)		465	961		859	
Turn Bay Length (ft)	250			400		
Base Capacity (vph)	278	2107	1289	881	548	487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.20	0.98	0.63	0.33	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions

AM Peak Hour

	→	↘	←	↙	↓	↗
Lane Group	EBT	EBR	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	646	563	1062	580	569	528
v/c Ratio	0.51	0.36	0.84	0.82	0.82	0.79
Control Delay (s/veh)	15.0	0.6	22.3	24.9	23.9	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	0.6	22.3	24.9	23.9	22.4
Queue Length 50th (ft)	84	0	151	161	148	128
Queue Length 95th (ft)	125	0	#255	#329	#328	#290
Internal Link Dist (ft)	1531		139		595	
Turn Bay Length (ft)						490
Base Capacity (vph)	1416	1583	1407	818	793	761
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.36	0.75	0.71	0.72	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions
AM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	579	1915	63	413	187	568	1	537
v/c Ratio	0.85	0.97	0.30	0.28	0.25	0.82	0.02	0.54
Control Delay (s/veh)	61.4	41.7	58.4	18.3	4.7	57.5	67.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.4	41.7	58.4	18.3	4.7	57.5	67.0	5.1
Queue Length 50th (ft)	235	772	47	79	0	233	1	0
Queue Length 95th (ft)	329	#1255	106	170	58	315	8	32
Internal Link Dist (ft)		338		291		263	504	
Turn Bay Length (ft)	220		55		175			250
Base Capacity (vph)	954	1977	213	1497	746	1067	45	1168
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.97	0.30	0.28	0.25	0.53	0.02	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions
AM Peak Hour

	→	←	↶	↷
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	600	1221	778	359
v/c Ratio	0.36	0.72	0.73	0.64
Control Delay (s/veh)	7.9	12.1	14.7	11.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.9	12.1	14.7	11.9
Queue Length 50th (ft)	45	118	62	29
Queue Length 95th (ft)	77	189	119	105
Internal Link Dist (ft)	471	416	659	
Turn Bay Length (ft)			450	450
Base Capacity (vph)	2153	2153	1347	668
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.57	0.58	0.54
Intersection Summary				

Queues

Proposed Plan Conditions

1: Regents Rd. & SR-52 WB On Ramp/SR-52 WB Off Ramp

PM Peak Hour



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	1043	295	421	611	600	232
v/c Ratio	1.09	0.32	1.02	0.49	0.99	0.50
Control Delay (s/veh)	81.6	8.4	56.8	15.3	76.0	9.1
Queue Delay	5.2	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	86.8	8.4	56.8	15.3	76.0	9.1
Queue Length 50th (ft)	~753	55	120	100	203	0
Queue Length 95th (ft)	#997	107	m#179	114	#318	64
Internal Link Dist (ft)	863			383	1080	
Turn Bay Length (ft)			185			190
Base Capacity (vph)	956	908	412	1241	607	463
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	224	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.32	1.02	0.49	0.99	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2: SR-52 EB Off Ramp/SR-52 EB On Ramp & Regents Rd.

Proposed Plan Conditions

PM Peak Hour

							
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	213	215	1071	582	439	224	1357
v/c Ratio	0.25	0.25	1.26	0.76	0.88	1.29	1.06
Control Delay (s/veh)	14.8	14.8	152.2	43.3	40.6	175.0	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	14.8
Total Delay (s/veh)	14.8	14.8	152.2	43.3	40.6	175.0	68.1
Queue Length 50th (ft)	76	77	~840	183	154	~189	~500
Queue Length 95th (ft)	125	126	#1090	245	#337	m#192	m#394
Internal Link Dist (ft)		783		2407			383
Turn Bay Length (ft)	400		65		50	120	
Base Capacity (vph)	855	859	847	769	499	173	1275
Starvation Cap Reductn	0	0	0	0	0	0	98
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.25	1.26	0.76	0.88	1.29	1.15
Intersection Summary							
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.							
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.							
m Volume for 95th percentile queue is metered by upstream signal.							

Queues

Proposed Plan Conditions

4: Genesee Ave. & SR-52 EB Ramps

PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	326	295	663	263	611	1337
v/c Ratio	0.91	0.53	1.07	0.45	1.05	1.04
Control Delay (s/veh)	87.5	8.8	104.0	25.9	96.0	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	87.5	8.8	104.0	25.9	96.0	56.3
Queue Length 50th (ft)	311	0	~728	123	~569	~1333
Queue Length 95th (ft)	#479	82	#974	210	#740	#1495
Internal Link Dist (ft)	831		2855			1427
Turn Bay Length (ft)				150	520	
Base Capacity (vph)	382	573	617	590	584	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.51	1.07	0.45	1.05	1.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

15: I-805 NB Off-Ramp/I-805 NB On-Ramp & Clairemont Mesa Blvd.

Proposed Plan Conditions

PM Peak Hour

	→	↘	↑	↗	↓
Lane Group	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	1800	505	1	1105	695
v/c Ratio	0.74	0.34	0.00	0.97	8.69
Control Delay (s/veh)	22.9	0.6	22.0	52.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	0.6	22.0	52.4	0.0
Queue Length 50th (ft)	331	0	0	405	0
Queue Length 95th (ft)	386	0	4	#621	0
Internal Link Dist (ft)	1434		422		683
Turn Bay Length (ft)		250			
Base Capacity (vph)	2808	1507	746	1135	80
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.34	0.00	0.97	8.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
25: I-805 SB Ramps & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour



Lane Group	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	2583	417	621	1	589
v/c Ratio	0.89	0.27	5.70	0.00	0.82
Control Delay (s/veh)	16.6	0.4	0.0	15.0	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.6	0.4	0.0	15.0	28.7
Queue Length 50th (ft)	246	0	0	0	101
Queue Length 95th (ft)	#438	0	0	3	156
Internal Link Dist (ft)	1097		639	709	
Turn Bay Length (ft)					
Base Capacity (vph)	2943	1553	109	599	900
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	0.27	5.70	0.00	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
26: I-805 NB Ramps & Balboa Ave.

Proposed Plan Conditions
PM Peak Hour

	→	↘	↑	↗	↓
Lane Group	EBT	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	1845	464	1	937	653
v/c Ratio	0.85	0.31	0.00	0.90	4.16
Control Delay (s/veh)	18.6	0.5	11.0	30.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.6	0.5	11.0	30.2	0.0
Queue Length 50th (ft)	184	0	0	150	0
Queue Length 95th (ft)	243	0	3	#272	0
Internal Link Dist (ft)	1097		850		648
Turn Bay Length (ft)					
Base Capacity (vph)	2270	1520	697	1078	157
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.31	0.00	0.87	4.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

29: I-5 NB Off Ramp/I-5 NB On Ramp & Clairemont Dr

Proposed Plan Conditions

PM Peak Hour

						
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	95	737	829	357	242	947
v/c Ratio	1.02	0.57	0.93	0.56	0.25	1.10
Control Delay (s/veh)	155.2	32.3	58.7	7.3	15.3	87.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	155.2	32.3	58.7	7.3	15.3	87.9
Queue Length 50th (ft)	~75	236	336	0	96	~836
Queue Length 95th (ft)	#185	298	#457	84	145	#1086
Internal Link Dist (ft)		523	952		859	
Turn Bay Length (ft)	250			400		
Base Capacity (vph)	93	1325	925	645	972	864
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.56	0.90	0.55	0.25	1.10
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						

Queues

41: SR-163 SB On Ramp/SR-163 SB Ramps & Genesee Ave.

Proposed Plan Conditions

PM Peak Hour

	→	↘	←	↙	↓	↗
Lane Group	EBT	EBR	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	694	531	1408	358	398	387
v/c Ratio	0.45	0.34	0.81	0.70	0.77	0.72
Control Delay (s/veh)	10.2	0.6	11.4	22.1	21.9	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.2	0.6	11.4	22.1	21.9	19.1
Queue Length 50th (ft)	68	0	100	90	74	67
Queue Length 95th (ft)	104	0	176	166	#201	#160
Internal Link Dist (ft)	1519		175		595	
Turn Bay Length (ft)						490
Base Capacity (vph)	1868	1583	1996	675	652	670
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.34	0.71	0.53	0.61	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
42: Cardinal Rd./SR-163 NB Ramps & Genesee Ave.

Proposed Plan Conditions
PM Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	621	779	53	1013	450	506	1	442
v/c Ratio	0.82	0.43	0.19	0.83	0.58	0.65	0.02	0.48
Control Delay (s/veh)	46.7	14.4	39.4	33.7	8.0	36.2	51.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.7	14.4	39.4	33.7	8.0	36.2	51.0	7.5
Queue Length 50th (ft)	171	116	26	262	20	138	1	15
Queue Length 95th (ft)	#367	253	75	#563	149	203	7	53
Internal Link Dist (ft)		305		291		263	504	
Turn Bay Length (ft)	220		55		175			250
Base Capacity (vph)	753	1795	281	1224	770	1406	60	915
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.43	0.19	0.83	0.58	0.36	0.02	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: SR-163 NB Off Ramp & Mesa College Dr.

Proposed Plan Conditions
PM Peak Hour

	→	←	↶	↷
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	583	1365	453	214
v/c Ratio	0.36	0.74	0.63	0.50
Control Delay (s/veh)	5.3	9.5	17.2	8.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.3	9.5	17.2	8.9
Queue Length 50th (ft)	52	154	39	0
Queue Length 95th (ft)	81	227	87	54
Internal Link Dist (ft)	505	440	598	
Turn Bay Length (ft)			450	450
Base Capacity (vph)	2060	2354	807	460
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.58	0.56	0.47
Intersection Summary				